

VideoWorks™ II

Animated Presentations for the Office, School or Home



"Anyone with a Macintosh will be fascinated with VideoWorks"

The most Innovative product of the year, 1985.

"The best computer program I ever used!"

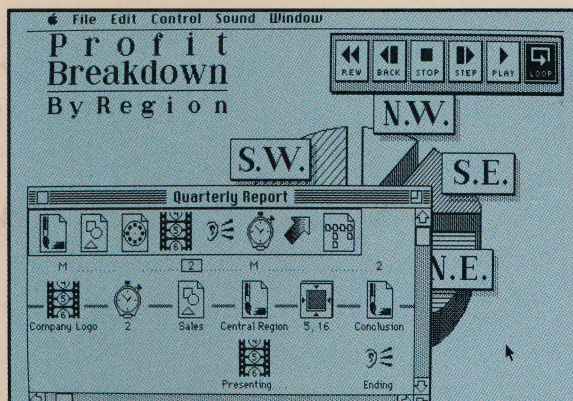
"VideoWorks II is the best of the bunch"

Frank Thomas, Disney animator

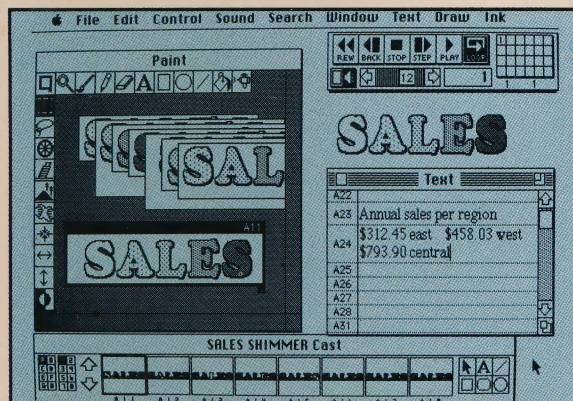
Alan Kay, Apple fellow

MacWorld

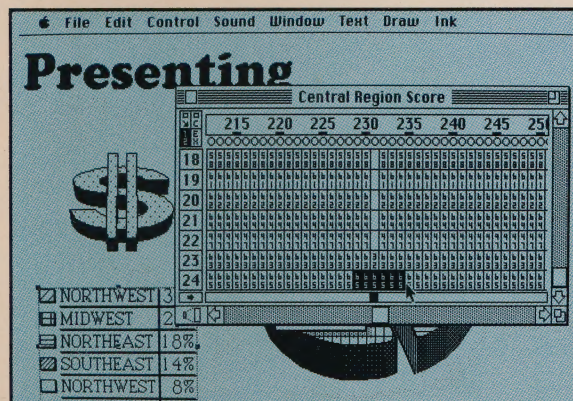
MacUser



Create slide shows that contain animation, sound and MacPaint or PICT documents.



VideoWorks II comes with a full paint program, a text editor and lots of artwork and animations.



The VideoWorks II score is used for controlling and editing animation, as well as sound or music cues and a variety of wipes and dissolves.

VideoWorks II includes:

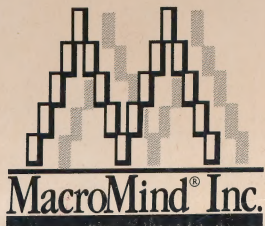
- A slide show creator which can include animation or sound along with MacPaint or MacDraw documents.
- Color capability, with up to 256 colors on the Macintosh II for stunning presentations and animations.
- A complete paint program, including an Airbrush and Click Art EFX™, (which allows rotation, perspective, distortion and skewing).
- Art Grabber+, a desk accessory that lets you import and use MacPaint artwork without leaving VideoWorks II.
- A graphic notational Score that allows you to edit up to 24 pieces of artwork on the screen at one time. Sound, tempo changes and transition effects can be added to the score with the click of a mouse.
- Two disks full of clip animation, tutorials, completed movies and artwork that's ready to be animated. Plus a Training Disk that guides you through all the basic features of VideoWorks II.

VideoWorks II uses:

- Animated business presentations.
- Rolling in-store promotions & point-of-purchase displays.
- Multi-media storyboards for professional productions.
- Instructional & educational animations for classroom use.
- Animated cartoons, music videos-a tool for the creative artist.
- Video animations for cable or industrial video.

You don't have to be an artist to use VideoWorks II

No need to create your own drawings! VideoWorks II comes with an abundance of artwork, clip animation and completed movies. Just copy the artwork or animation from the disks supplied with the program.



**VideoWorks II is for the Macintosh 512,
512e, Mac Plus, SE and Macintosh II.**

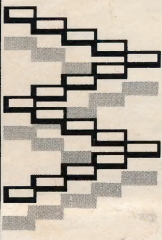
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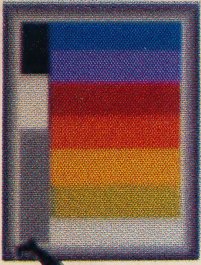
VIEWPOINT

TM

II



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MAKING IT

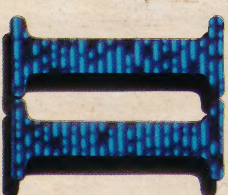
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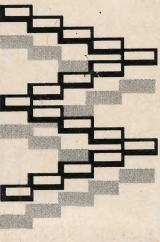
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MAJOR LEAGUE IITM



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VideoWorks II

System, Program & Tutorials

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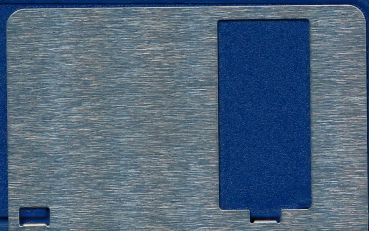
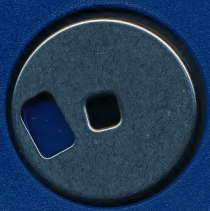


XS 2



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VideoWorks II

Clip Animation, Artwork & Movies

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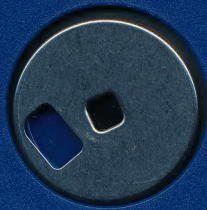


VS 2



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VideoWorks II

Guided Tour

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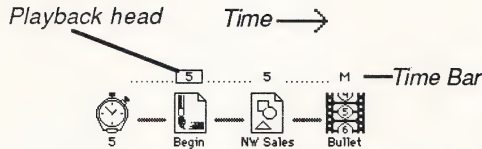
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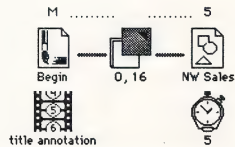


VideoWorks II

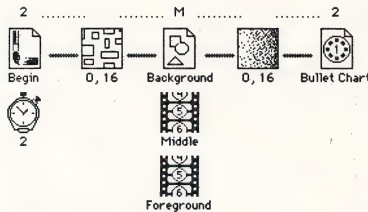
Overview Reference Icons, Typical Sequences and Shortcuts



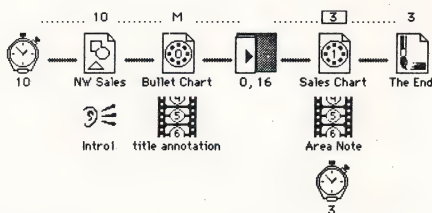
A simple Overview sequence of a MacPaint, PICT, and VideoWorks II document.



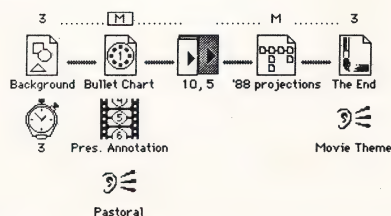
A VideoWorks II document plays in front of a MacPaint document. The column uses the time of the Movie ('M'). A reveal transition into a PICT, (with it's own timer) then occurs



Timers can be placed in any row. More than one VideoWorks II document can play at the same time.



Sound icons can be used to accentuate slides, and VideoWorks II documents can be used add titles, captions or moving arrows.



You can insert pre-existing Overview documents into a presentation.

Organization: Overview Documents are played left to right. Documents are arranged in columns and rows. Everything in a given column is played at the same time. The Playback Head shows what column is currently being displayed. While Movies, Transitions and Timers can appear anywhere, PICT, GLUE or MacPaint documents can only occur in the top row.

The row determines the priority of a document. Documents in the second row appear in front of documents in the first row.

Window Management: Holding down the Shift key while selecting the Play command will clear the screen and start the presentation. You can open and close the Overview window by choosing command-3.

Get Info: Each Icon has a Get Info window. Use it for setting the position of any slide or movie, the special timing or repeat options of a movie, and the page number of a GLUE document.

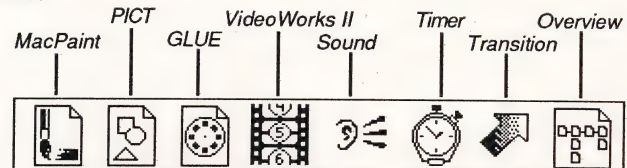
Shortcuts:

Click on Stage	= Step to next column
Double-click Icon	= Get Info
Shift-Play	= Play to full screen
Shift-Step	= Repeat current column
Click on Playback Head	= Displays that column
Command-Click	= Select whole column

Timers: A timer sets the number of seconds that all columns after it will play (until the next Timer is encountered). The time that a given column will play is shown above it in the Time Bar.

VideoWorks II movies usually have their own time information and do not obey timers. This is indicated by the "M" above their columns. VideoWorks II movies can, however, be adjusted to obey the current timer by using Get Info.

Transitions: A transition can be placed between any two document types. The two numbers below a transition indicate the Delay before starting each chunk and the Chunk Size. Increasing either of these values (using the Get Info command) lengthens the transition time.



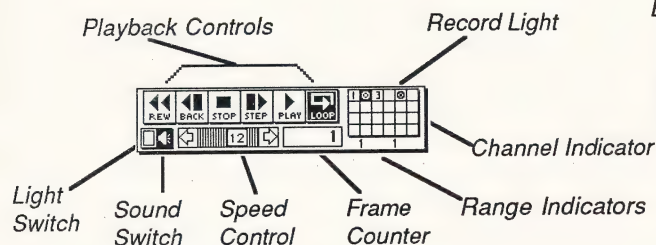
Drag Panel by clicking in gray area

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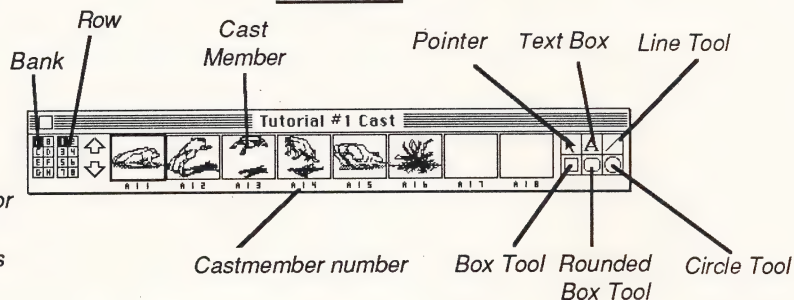
VideoWorks II: VideoWorks Reference

Panel, Score, Paint and Cast Windows

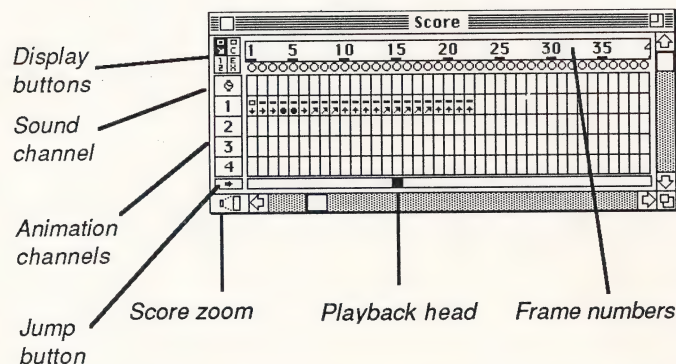
The Panel



The Cast



The Score



Score Display Buttons



Direction Indicator Button

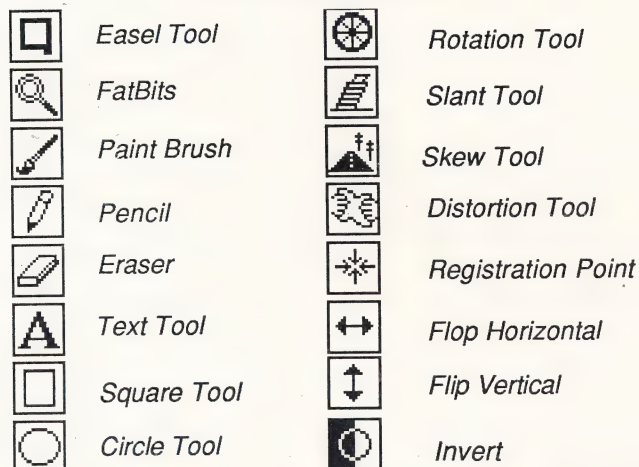
Top portion of display shows castmember change:

- ☐ New castmember introduced
- ☐ Castmember unchanged from previous frame

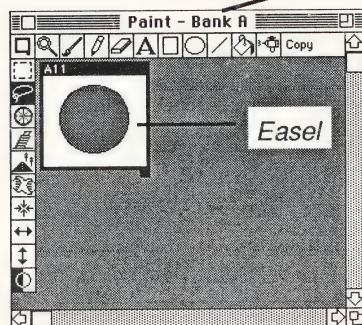
Bottom portion of display shows direction moved from last frame:

- | | | |
|--------------------------------|--|-------------------------------|
| ☐ Right | ☐ Up and to the right | ☐ Stop |
| ☐ Up | ☐ Up and to the left | |
| ☐ Left | ☐ Down and to the left | |
| ☐ Down | ☐ Down and to the right | |

The Paint Window



Selected Bank in Cast



Ink Setting Button

Letter indicates what the Ink setting is:

- | | | |
|---------------------------------|-----------------------------------|-----------------------------------|
| ☐ C Copy | ☐ Not Copy | ☐ Matte |
| ☐ Or | ☐ Not Or | ☐ Mask |
| ☐ Xor | ☐ Not Xor | ☐ No Erase |
| ☐ Bic | ☐ Not Bic | |

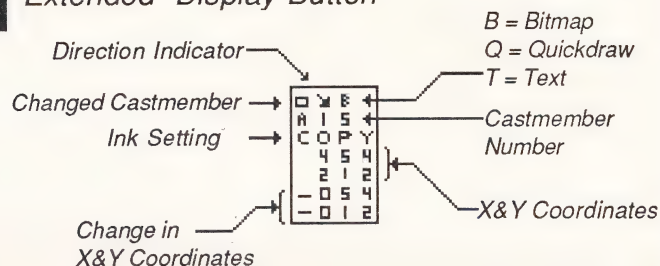


Castmember number Button

The top number is the cast row # and the bottom number the position in that row.



Extended Display Button



MACROMIND® PRESENTS A NEW DOUBLE FEATURE FOR VIDEOWORKS II™

With *VideoWorks II* you can turn ordinary presentations into "multi-media extravaganzas" on your Macintosh.

Even if you're not an artist, it's easy to add the excitement of animation to your presentations, thanks to *VideoWorks II*'s library of clip sound and animation.

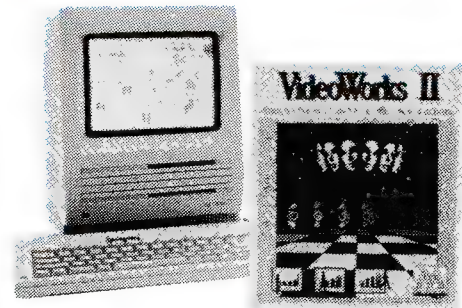
Now here are two great add-ons that add new versatility to your *VideoWorks II* movies:

VideoWorks II HyperCard® Driver

HyperCard extends the potential of your Mac. And this program extends the capabilities of HyperCard! With one simple command, it lets you play *VideoWorks II* movies without leaving HyperCard:

- Animate directly on top of HyperCard or in a separate window.
- Enjoy full-screen animation (you're not limited to card size.)
- Exercise options to reposition or pre-load animations.
- Play color or black and white movies.

Requires *VideoWorks II*
Suggested retail price \$99.95



VideoWorks II Accelerator

Accelerate your movies to maximum speed. Take any *VideoWorks II* movie and run it at up to 40 frames per second.

- Accelerate and smooth the animation of large and complex images which normally would run slowly in *VideoWorks II*.
- Use it with color as well as black and white movies.
- Play sound as well as video and retain tempo changes.
- Run any length movie (only limit is disk space).

Requires *VideoWorks II*
Suggested retail price \$195.00



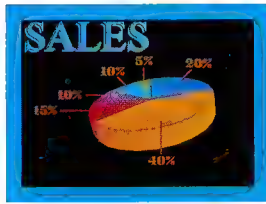
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Put Your Ideas Into Motion.



Ideas have always had tremendous power in moving people.

Now MacroMind® makes it possible for people to exercise tremendous power in moving ideas.

VideoWorks II™, along with its family of utilities and accessories, brings professional-quality animation to the Macintosh.™ Instead of having to rely on expensive and time-consuming outside resources, you can become the producer and director of your own animated, multimedia presentations.

Marketing presentations, training materials, demonstrations and storyboards can all be enhanced and brought to life by the use of any or all of the multimedia features available with VideoWorks II and Macintosh. Animation in color or black & white, with or without sound, is a tool you can now utilize both economically and quickly with professional quality results.

If your business depends on getting people to move on your ideas, it can be worth your while to put your ideas into motion—with MacroMind and VideoWorks II.

VideoWorks II*

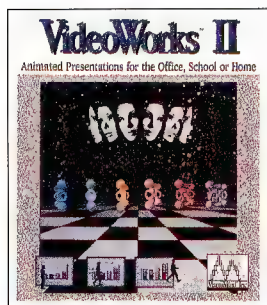
The program that brought animation to the Macintosh user.

With VideoWorks II, you create animated slide shows from MacPaint, PICT or Glue documents, then add clip animation and sound for a true multimedia presentation.

VideoWorks II features advanced animation techniques, text editing, graphic tools, color printing, a database for artwork, and digitized sound.

It comes with everything you need to learn and use it: an interactive guided-tour disk, a comprehensive manual, tutorials, clip animation, artwork, movies and sounds.

A full line of utilities and accessories is available for VideoWorks II.



VideoWorks II Utilities

HyperCard™ Driver—Apple provided the vehicle. MacroMind lets you drive it.

With a single command, you can play any VideoWorks II document inside HyperCard!

Professional-quality sequences can be animated directly on top of HyperCard, in a window or across the entire screen, in color or black & white. By combining VideoWorks II and the HyperCard Driver, you can now create Stackware™ with animation, graphics and sound.

Accelerator—

Accelerate your ideas to the speed of your imagination.

You can accelerate any VideoWorks II document easily.

Accelerator takes an animation and speeds it up to near digital-video quality. It works with color or black & white movies, and plays sound along with the animation.



VideoWorks II Accessories

Clip Animations™—Enhance your presentations with graphics that move.

You don't have to be an artist with these ready-made animations. Images shimmer, fade and tumble to get your message across.

Clip Sounds™—

An array of digitized sound effects and music.

Create exciting presentations by adding sound effects and music. Includes a program which moves sounds into VideoWorks II and HyperCard.

Clip Charts™—

Bar, pie, line and bullet charts; pick a style.

Show industry trends or company sales figures with ready-made animated charts and graphs in more than 30 styles.

Black & White

Movies—17 of them, an intriguing variety.

Our artists have created an exciting range of animation in these movies. You can combine movies into your own presentations or enjoy them for themselves.



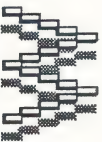
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312.871.0987

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*VideoWorks II was a 1987 winner of the MacUser Golden Eddy Award and Best Creativity and Best Vertical Market Product, 1987, from the Software Publishers Association.

VideoWorks IITM

Registration Card



Macromind® Inc.

Fill out and return this registration card to receive:

- Product Support
- Tips and techniques in our newsletter
- Announcements and special offers on new Macromind products

Name: _____

Organization: _____

Street: _____

City: _____

State: _____ Zip: _____

Country: _____

(if other than USA)

Phone: _____

Was this purchased for:

____ School ____ Business ____ Home

What are you using VideoWorks II for?

____ Business Presentations ____ Training

____ Education coursework ____ Entertainment

____ Video or Film Production ____ Advertising

Other _____

What influenced you to buy the VideoWorks II?

Advertisement _____ Product demonstration _____
Magazine review _____ Dealer recommendation _____
User Group _____ Friend's recommendation _____

Where did you purchase VideoWorks II?

What magazines do you read?

MacUser _____ MacWorld _____
Personal Computing _____ InfoWorld _____
MacWeek _____ PC Week _____

What Macintosh do you use?

Plus _____ SE _____ II _____ IIx _____ Other _____

Do you use a hard disk with your Macintosh? What size?

Yes _____ No _____

20M _____ 40M _____ 80M _____ CD-ROM _____ Other _____

Place
Stamp
Here

To: MacroMind, Inc.
P.O. Box 148557
Chicago, IL 60614

I am a registered VideoWorks II owner - My registration card is on file.

Yes, I want to TRADE-UP for \$260*.

Send me VideoWorks Professional™ now

*All prices include \$10.00 for shipping & handling.

How do you want it shipped? ___ UPS ___ US Mail

How do you want to pay for it? ___ Check #: _____

___ Credit Card: VISA MasterCard American Express

Exp date: _____ Card #: _____

- VideoWorks Professional™ release date: January, 1989.
- Call for further information: (312) 871-0987.

Owner's Name: _____
Company: _____
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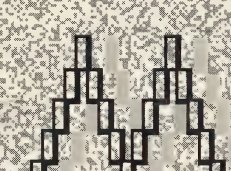
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TRADE-UP to
VideoWorks Professional™!

VideoWorks II

Animated Presentations for the Office, School or Home

Manual



MacroMind® Inc.

VideoWorks II

MacroMind,[®] Inc.

*Manual by
Douglas Kramer*

VIDEOWORKS II Manual
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If you believe you have found any such error or defect in the program during the warranty period, call MacroMind's Technical Support Department, (312) 871-0987 between the hours of 9:30 a.m. and 5:30 p.m. (Central Standard Time), Monday through Friday. MacroMind technical personnel will attempt to help you correct or avoid the problem, but will not provide consultation. If any such error or defect cannot be corrected or reasonably avoided by you, MacroMind will inform you how to obtain a corrected program disk.

Disk Replacement Policy

If any disk supplied with this product fails within ninety (90) days of purchase for any reason other than accident or misuse by the customer, please return the defective disk together with proof of purchase to MacroMind Inc., 1028 W. Wolfram, Chicago, IL 60657, for a free replacement. This policy applies to the initial purchaser only.

MacroMind will replace program disks damaged for any reason, whether during or after the ninety (90) days free replacement period, for \$5 per disk plus a postage and handling charge of \$2.50 per request, as long as the program is still being manufactured by MacroMind.

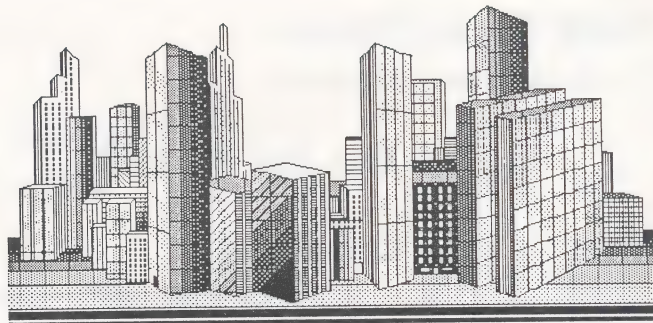
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Foreword



Congratulations, you've just purchased an exciting, powerful product to make your Macintosh do more than you ever imagined! I would also like to personally thank you, and wish you hours (and days and weeks) of fun, relaxation and professional fulfillment with VIDEOWORKS II.

Animation is one of the most amazing feats of modern day technology. Some of our earliest memories are of Mickey, Betty Boop or Popeye, but more importantly the Pentagon's or Kremlin's Star Wars technology is also brought to life with animation. And let's not forget the big three Networks' or Madison Avenue's use of animation on television, or of the educational aspects of animation (beyond cartoons). It's clear to see that animation touches all of our lives in one way or another.

Animation really can change the way we perceive things, but it's only a small part of a larger category called creativity tools. The creativity tool business has always been a subset of the videogame, or what's called the home productivity business. On the professional side, computers have become commonplace in the television, radio, music and advertising industries. We are trying to get the message out to the businessmen (and women) of the world that creativity is an important part of everyone's lives, and that it is necessary in every type of business or profession. Creativity tools can help in the development of ideas, by just providing an outlet for the mind. By simply drawing a picture or composing a song, the average worker (or student) will not only be able to increase their own self esteem, but also tap into the inner talent which has been inside of them their entire life.

MacroMind was born in 1984 to produce easy to use, powerful software. When we got into doing animation software, it became immediately apparent that it wasn't going to be easy to make cel animation accessible to everyone. We were worried that kids would find it intimidating and that the complexity of the whole process would overwhelm them.

It turned out that the ones who had trouble learning VideoWorks weren't the kids or young people, it was the adults who found the concept of an animation stand or cel animation so foreign to them, that it took them awhile to learn the product. Even getting people to try out VideoWorks became a chore, with some people ending up just using it as a playback device for all the movies we supplied.

We were faced with fundamental questions: how to keep the power of VideoWorks intact, while at the same time making it easier to use, and more accessible for beginners. This led to the birth of the Overview window.

Icons, rather than words, are better at representing bunches of things. The original VideoWorks linked together a list of movies by typing the names of the movies into a list. Now with the Overview window, you line the icons of the movies up, starting from the left and going right. This starts people thinking how time moves from left to right, and about how they can cut, copy or paste sequences of events.

The Overview window will enable beginners to take advantage of VIDEOWORKS II from day one, while at the same time giving more experienced users a powerful new way to view movies, create

complex sequences and link together different types of documents under one "shell" program. It also enables us to introduce a new concept to the world – *clip animation*. By placing a clip animation in front of a "slide", a designer can quickly spiff up a presentation with something that moves. This will prove useful in keeping people awake during long drawn-out meetings. The Overview window will also enable educators to annotate lessons with animated examples, on top of conventional courseware.

We've also added a number of new features to VIDEOWORKS II that increases its capability as an animation program. Special effects, more control, automatic in-betweening and improved sounds all are now possible with VIDEOWORKS II.

By enhancing the overall capabilities of VideoWorks, and including the Overview window, I feel that this product should give you enough depth and quality to keep you busy for years to come.

The world of VIDEOWORKS II includes using any (or all) of the many graphics products available today. Video digitizers, page scanners, paint programs, clip art, 3D drafting, etc. all are compatible (and welcomed) within VIDEOWORKS II. The Overview in particular will serve as a handy way to view (or preview) any MacPaint or PICT documents you may have. We also think that's it a great way to view Glue documents.

It's been over two years since the original VideoWorks was released. MacroMind is now publishing VIDEOWORKS II under our own label. With this new arrangement also comes a more comprehensive approach in providing the technical support, product enhancements and training necessary to really turn VIDEOWORKS II into an industry. You can expect more powerful versions of VideoWorks in the future, in addition to a full-scale training and seminar program.

Some people might know us as the folks who created Art Grabber or Maze Wars+. Or as the guys who did ComicWorks and GraphicWorks. Or as the pioneer Mac developers who got MusicWorks out by October 1984, and three other products out within the next year. MacroMind has been pounding away at the Mac market for some time now, and we intend on maintaining that tradition by developing only high quality and innovative products for the marketplace.

The introduction of the Macintosh II is a major milestone in the development of both MacroMind and the Macintosh community. It's been pretty silly for us to have an animation program on a microcomputer that had a black & white monitor and couldn't record on videotape. VIDEOWORKS II can take advantage of any color monitor, screen size or resolution available on a Macintosh II. As time goes on, you will see many new products from MacroMind that take advantage of the color capabilities of the Macintosh II.

As the Nubus becomes a standard for professional quality graphics, audio, and video hardware technology, we intend on providing the software to take advantage of these cards. It's exciting to project ahead a couple of years (it's July 1987 right now) and realize that a very powerful home (or office) integrated multi-media studio will be able to reside inside of your Macintosh II.

It's not a coincidence that VIDEOWORKS II is being released at the same time as the Macintosh II, and that we've got some other products with names like Art Grabber II and M.U.D. II. (Hmmm, maybe we should rename the company MacroMind II...)

The Macintosh is the most fantastic computer ever created (even if my initials weren't MAC – Marc Aaron Canter)! I just hope that Apple will continue to improve the Macintosh family of computers to give developers (like us) a great platform to build on.

Marc Canter
Chicago
July 1987

Welcome

You're about to experience a whole new way to use your Macintosh. Instead of just looking at a chart or document on the screen, you can create moving presentations with movies, slide shows and clip animation that really bring your Macintosh to life. With VIDEOWORKS II, you can start out at the simplest level, creating a slide show, and work up to creating full-blown, detailed movies with sound. Animated presentations, multi-media storyboards and educational movies are all possible and well within the capabilities of VIDEOWORKS II.

Watch All the Movies

If you are anxious to see the movies we've included, don't wait any longer. Start your system with the *Systems, Program & Tutorials* disk, then insert the *Clip Animation, Artwork & Movies* disk into an external disk drive and, at the Finder, double-click on the document titled "Movie Show." When the document has loaded, call your friends over, press **Shift-Enter**, lean back and watch. This presentation will show you all the movies on that disk (which is everything but the tutorials). To stop the movies at any time, press the period (.) key.

If you are not an experienced Macintosh user, we recommend you jump to Tutorial #2 and follow the steps to watching the "Movie Show."

About This Manual

This manual contains three main parts:

- Tutorials
- How to Animate
- Reference

Tutorials teach you Overview—how to create slide shows and animated presentations. Then they teach you VideoWorks—how to create and combine artwork into movies.

How to Animate is the major part of this manual. It covers all steps in producing Overview and VideoWorks documents, complete with step-by-step procedures.

Reference describes all VIDEOWORKS II commands, windows and hidden features. The commands are arranged in the order that they appear on the pull-down menus. Hidden features are important features that are not found on any menu or in any window.

Guided Tour Disk – The quickest way to get up and running is by running the Guided Tour disk – see "Guided Tour of VIDEOWORKS II," at the start of "Tutorials." This training disk lets you interact as you learn. After that, you can dive into the tutorials to get step-by-step instruction.

VIDEOWORKS II has its own terminology unlike word processing, spreadsheets or data processing. For instance, each movie is represented notationally by a Score with channels and frames. See the sections on Overview and VideoWorks terminology at the start of "How to Animate" and the Glossary at the end of the manual.

If you have unbridled curiosity and want more depth, you can always jump into the Reference section for details on any window or menu item. Refer to "How to Animate" if you want more in-depth information than the Tutorials or reference can give.

The Process of Animation – Be sure to read "The Process of Animation," located at the end of "The Big Picture." This is a two-page description that serves two purposes: First, it will give you an overall understanding of the product. Second, having read it, you will understand how this manual is structured. ("The Big Picture" serves as the outline for "How to Animate.")

About The Disks

VIDEOWORKS II provides you with three 800K disks:

- VIDEOWORKS II System, Program and Tutorials
- VIDEOWORKS II Guided Tour
- VIDEOWORKS II Clip Animation, Artwork & Movies

System, Program & Tutorials Disk contains System 4.1, the VIDEOWORKS II program, and the Tutorial files (numbered #1, #2, #3, etc.) for the tutorials in the front of the manual.

Guided Tour Disk contains a self-starting, self-running demonstration of VIDEOWORKS II .

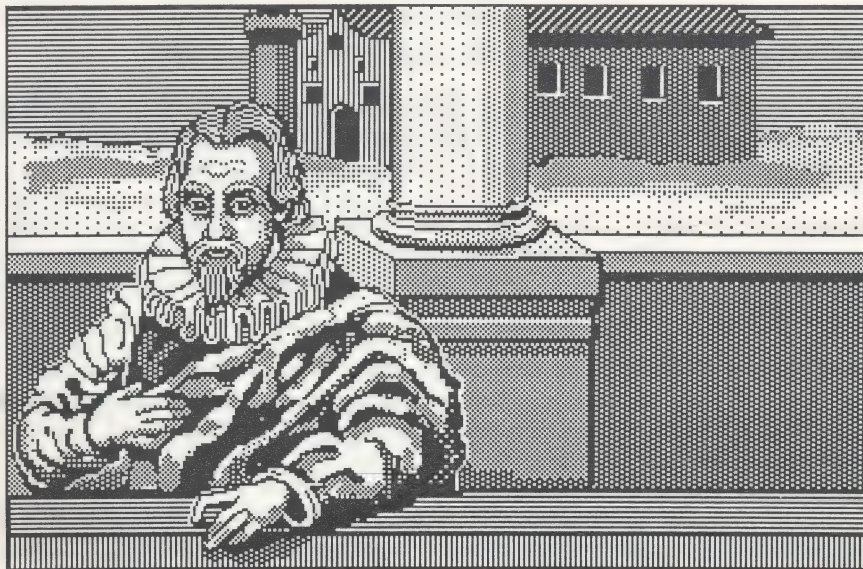
Clip Animation, Artwork & Movies Disk contains many pieces of art and animation that you can use in your own movies and presentations. From now on throughout this manual we will call this the *Movies Disk*.

More Movies, Clip Animation, and Artwork Disks Coming!

MacroMind will be offering a number of ancillary products to complement VIDEOWORKS II. These products will include disks of:

- Clip Animation (for inserting in front of slides in Overview)
- Artwork (which can be used to create animated sequences)
- Sound (which can be included in any movie or in Overview)
- Movies (which are standalone entertaining animations, complete with their own sound)

Watch for these great products in the upcoming months. Ask for them at your local dealer.



Getting Started

To use VIDEOWORKS II, you need:

- A Macintosh computer with 512K or more memory
- One double-sided (800K) disk drive
or two single-sided (400K) disk drives
or a hard disk
- Extra disks for saving your documents

Starting VIDEOWORKS II

The first time you start up VIDEOWORKS II, you will have a chance to personalize the diskette. This will make it easy for you to distinguish your copy from those belonging to other people.

To start VIDEOWORKS II :

1. Turn on your Macintosh.
2. Insert your copy of the VIDEOWORKS II *System, Program & Tutorial Disk* into the internal disk drive.
3. Double-click on the VideoWorks II icon:



This starts VIDEOWORKS II. If this is the first time this program has been started, a dialog box will appear, for you to type in your name and organization.

4. Type in your name, hit the Tab key and type in your organization name. Then click OK.

VIDEOWORKS II starts and a new VideoWorks document opens.

Note About Printing: The printer files (ImageWriter and LaserWriter) are *not* included on the *System, Program & Tutorial Disk*. If you are using two floppy drives (no hard disk) and if you want to print, you will need to move the System, VIDEOWORKS II program and printer files all onto the same disk (as described next).

There are two ways you can create a disk for printing:

- Copy VIDEOWORKS II onto a System disk that contains printer files
- or—
- Move the tutorials off the *System, Program & Tutorial Disk* and copy the printer files onto that disk. In this case it is imperative that you copy the System 4.1 printer drivers and not the drivers for an earlier system (such as System 3.2).

400K Disks

If you require 400K disks, you can go to your dealer and have your 800K disks copied to 400K disks. Or you can send in the coupon at the back of this manual along with your 800K disks and \$25 to MacroMind, Inc. And we will send you 400K disks to run VIDEOWORKS II. The minimum practical configuration is two 400K drives.

Starting a VideoWorks or Overview Document

We have shown you one way to start VIDEOWORKS II. There are basically two ways you can start it:

To start VIDEOWORKS II and:

Double-click

Create a *new* VideoWorks
or Overview document



Open an *existing* document



or



The first time you double-click on the VIDEOWORKS II program icon, VIDEOWORKS II starts up in Overview. Thereafter it will start up in the last application you left – either VideoWorks or Overview.

Copying VIDEOWORKS II

VIDEOWORKS II is *not* copy-protected. This will allow you to work with VIDEOWORKS II easily. But please remember that the creators of VIDEOWORKS II, MacroMind are relying on you to not give away copies to others. They have spent a lot of time, effort and money to bring VIDEOWORKS II to you. The only way they can continue to provide software like this is if you respect the copyright laws.

You should, however, make a backup copy of VIDEOWORKS II for yourself. Do this soon after personalizing your copy of VideoWorks.

1. **Make one copy of the original VIDEOWORKS II System, Program & Tutorials Disk.** Do this by dragging the icon of that disk onto the icon of the blank disk to which you are copying.
2. **Use the same procedure to copy the other two disks.**

Use the copies in your daily work. Keep the originals in a safe place where they will not be damaged.

Technical Details

System 4.1 vs. System 3.2

We have provided System 4.1 with VIDEOWORKS II to take advantage of hierarchical menus for the Sound and Text menus. VIDEOWORKS II will run just as well under System 3.2 without hierarchical menus. See "Sound Menu" and "Text Menu" in "VideoWorks Reference" for more details.

Freeing Up Disk Space

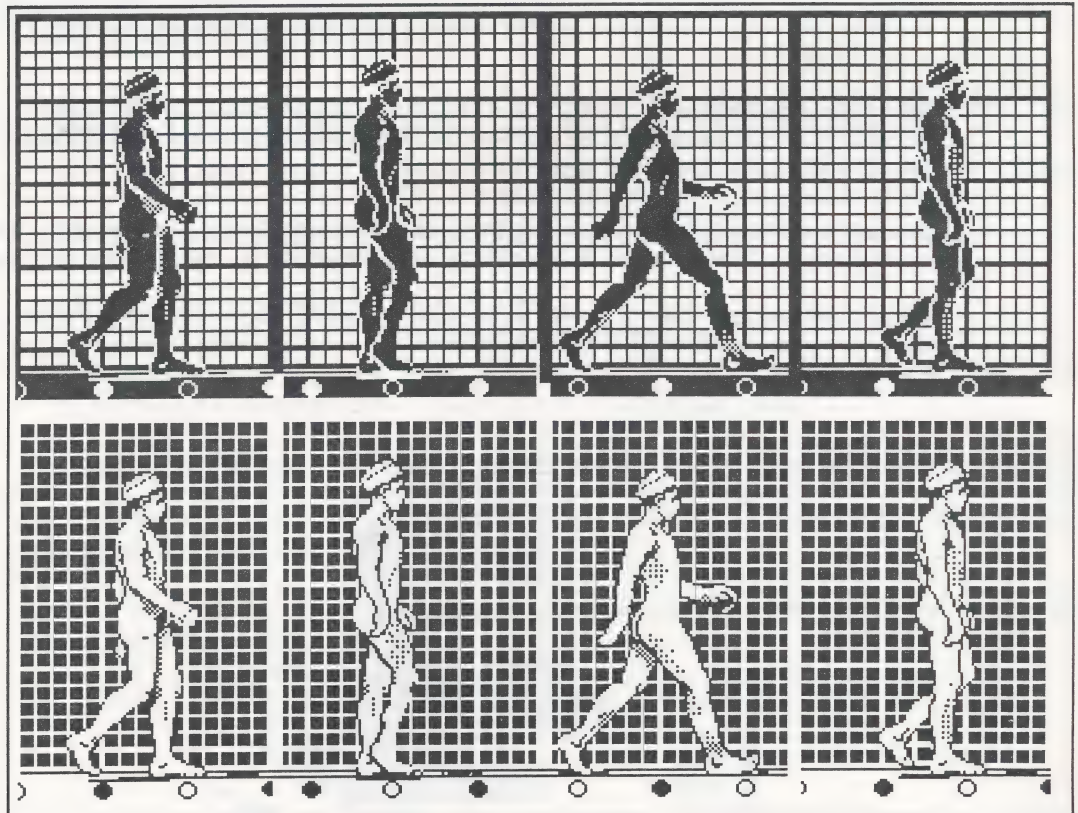
You can free disk space by moving all unneeded files and fonts from your copy of the VIDEOWORKS II disk.

- **Remove Tutorial Files.** When you have finished the tutorials in this book, move the tutorial documents to another disk. (They are the files that begin with #1, #2, #3, and so on.)
- **Move Fonts.** Use the Font/DA Mover (supplied with your Macintosh) to move fonts that you don't use out of the System (and, hence, off the disk).
- **Remove or Reduce the Custom Sounds File.** If you are not using Sound, remove the Sounds file. If the Sounds file has custom sounds that you are not using, remove them using the Sound-to-Video utility.
- **Remove the Macintalk File.** If you aren't using speech, remove this file.

You can also save disk space by reducing the size of VIDEOWORKS II movies. See "Hints, Tips and Tricks" earlier in the Reference section. Briefly, you can save space by making artwork as small as possible and replacing Paint artwork with QuickDraw shapes where possible.

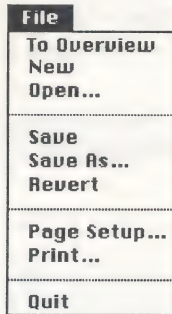
VW Preferences File

For your information, when you first use VIDEOWORKS II, a file called **VW Preferences** is automatically created in your System Folder. This file stores the settings that you specify in the Preferences dialog box (available at the Control menu in VIDEOWORKS II). It also includes other information, such as whether you last worked in VideoWorks or Overview (this enables the program to start up in the application where you left off).

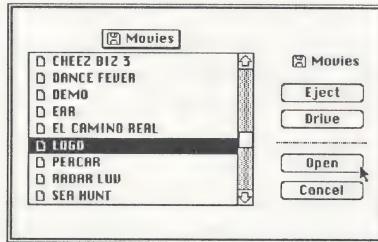


Macintosh Terminology

Here is a list of some Macintosh terminology you should know for the Tutorials. Refer to your *Macintosh Owner's Guide* for more details.



A menu



A dialog box

The pointer

Pointer The *very tip* of the pointer is its active part. When you are told to "move the pointer to the box," you need to place the tip of the pointer in the middle of the box.

Click means to briefly press and release the mouse button.

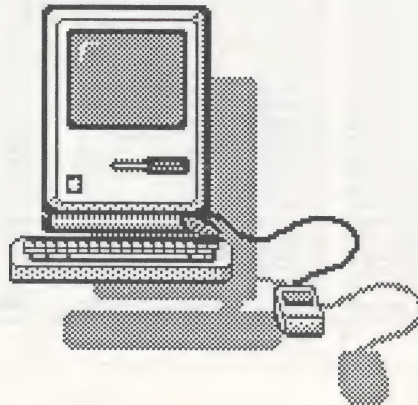
Double-click means to click twice, quickly. If your clicks are too far apart, they will be interpreted as two single clicks. You can adjust the speed at which you must double-click by choosing Control Panel at the Apple menu.

Drag means to press down the mouse button and hold it down while moving the mouse. For example, you can drag objects around on the Stage; and in the Score you can drag the pointer across frames to select them.

Select an object means to highlight that object so that you can move, cut, copy or paste it. For example, you can select a window (to make it active), select art on the Stage (to move), and select frames in the Score (to cut and paste).

You **open** a document when you want to watch it or work on it. To keep any changes you've made, **save** it. When you are done working on it, you **close** it. By Clicking on Close box.

The **Command** key is the key with the symbol  on it. The term "Command-W" means "hold down the Command key  down and press W."



How to Get Help

Help is available in two forms:

- Choose Help from the Apple menu. This displays a list of useful procedures, commands and shortcuts.
- Use the Index, Table of Contents and Glossary of this manual to locate any subject in this manual.

Technical Support

MacroMind will provide technical support (not consultation) to registered owners for 90 days after we receive the Registration Card. You must send in your Registration Card to receive technical support.

Warranty, Licensing Agreement and Technical Support policy for VIDEOWORKS II is on page 2. Technical support hours are 9:30-5:30, (Central Standard Time), Monday-Friday. (312) 871-0987

Site Licensing Contact MacroMind for our policy on site licensing agreements for schools, universities, corporations and large institutions.

Making the Transition from the Original VideoWorks to VIDEOWORKS II

VIDEOWORKS II has many improvements over the original VideoWorks. The following is a list of the old features that have changed (not a comprehensive list of new features) for people who are accustomed to the original version.

- **Real-time recording** is now accomplished by holding down the Option-Command keys and does not require you to select a new channel each time you add a new castmember.
- The Add command is now the **Insert** command. It functions no differently—the word Insert, however, is more descriptive of the fact that it inserts a frame across all 24 channels.
- The Kill Frame command is now the **Delete Frame** command. Its command key shortcut is now **⌘-K**.
- CheapPaint is now called the **Paint** window.
- QuickDraw Primitives are now called **QuickDraw Shapes**.
- The Paint window icons for Selection Rectangle and Paintbrush have been modified to conform to the MacPaint icons. Fatbits is now a magnifying glass.

Changes on the Stage Are Now Recorded Immediately – Formerly, if you made any changes on the Stage (for instance, if you moved artwork, or dragged out a castmember) those changes would only take effect when you did a Step or an Add. To learn about the new method, try Tutorial #6, "The Frogs."

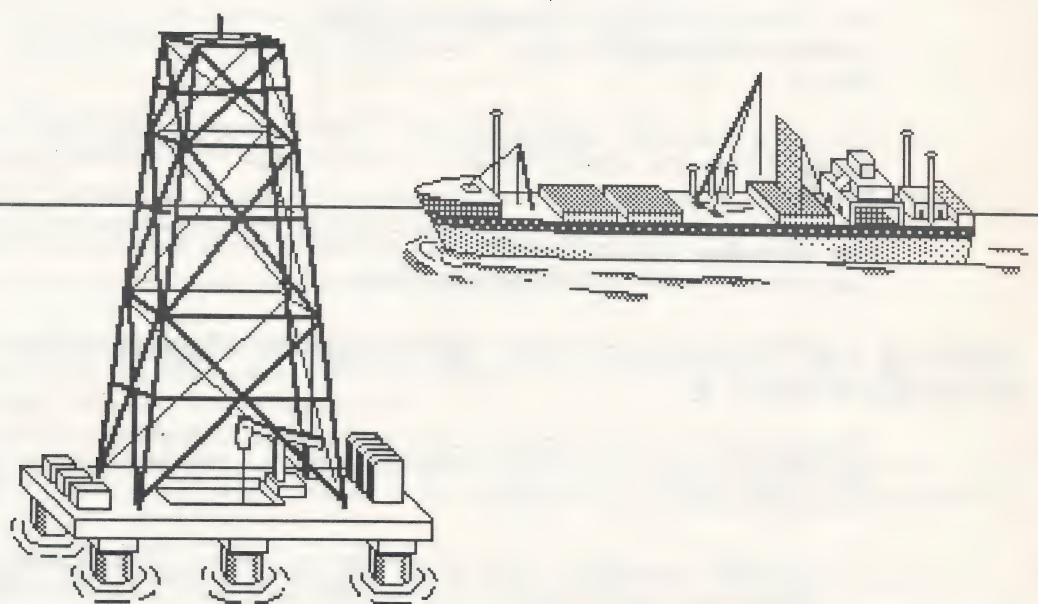
The icon for movies has changed, so that you can distinguish VIDEOWORKS II movies from the original VideoWorks movies:

VideoWorks 1.0



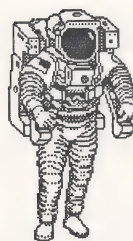
VideoWorks II





VideoWorks II

Tutorials



The Tutorials include carefully detailed descriptions to teach you VIDEOWORKS II through examples. You should be able to make it through them even if you are new to the Macintosh. They touch every basic facet of animation and build upon each other to strengthen your skills. At any time, feel free to refer ahead to the "How to Animate" and "Reference" sections.

The Guided Tour Disk is the first and most important part of getting a good, quick understanding of VIDEOWORKS II. The first three tutorials cover making presentations with Overview, and the remaining tutorials cover VideoWorks.

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Overview

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Advanced Overview	

VideoWorks

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An Introduction to VideoWorks	
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Covers Real-Time Recording, Introduction to the Score	
Tutorial #6 - The Frogs.....	60
Covers Frame-By-Frame Animation and Score Editing	
Tutorial #7 - Point Of Purchase Display.....	78
Covers In-Betweening	

Guided Tour of VIDEOWORKS II

VIDEOWORKS II comes with a Guided Tour disk. By watching and interacting with this Guided Tour, you will learn some of the basics of VIDEOWORKS II, and have a little fun along the way. To start the demo:

1. If your Macintosh is turned on, restart your Macintosh (select Restart from Special menu in the Finder), otherwise turn on your Macintosh.

There should now be no disks in your Macintosh, because we want to "boot the system" from the Guided Tour disk.

2. Insert the *Guided Tour* disk into the Macintosh to start the Tour.

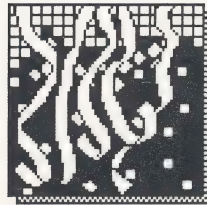
The Guided Tour disk will start up automatically, and take you by the hand.

The Guided Tour Demo is by far the easiest way to start learning about VIDEOWORKS II. It will take you less than 20 minutes to complete, and painlessly introduce you to many of the fundamental ideas in VIDEOWORKS II. There is also some nice animation in it!

Note that the entire Guided Tour Demo was created with VideoWorks/Interactive, the professional version of VIDEOWORKS II which includes an interactivity authoring system. This will give you some idea of the flexibility and power that is available in VIDEOWORKS II.

If you're in a hurry...

If you are a fairly experienced Macintosh user, and you want to see some animation right away, skip to Tutorial #2 - The Movie Show. But be sure to come back to Tutorial #1 before long!



Tutorial #1 - Bamboo Industries

VIDEOWORKS II contains two applications within it - Overview and VideoWorks. The first three tutorials describe how to create Overview documents, the rest describe how to create VideoWorks documents.

In this tutorial we introduce the Overview window – a quick and easy way to create an animated slide show. Here you can combine existing graphics documents (see below) with VideoWorks movies and "clip animation." Clip animations are the equivalent of "clip art" for your animated slide show – they are short, succinct animated graphics (movies) that you can easily combine into your own presentation. In the Overview window you can also add in sounds, fancy graphics transitions, and adjust timing.

In Overview you can include:		Created from these programs:
	MacPaint document	MacPaint, FullPaint, GraphicWorks, SuperPaint, etc
	PICT document	MacDraw, MacDraft, GraphicWorks, SuperPaint, etc.
	Glue document	Any program that can print, by using Glue from Solutions, Inc.
	VideoWorks document	VIDEOWORKS II

In this tutorial, we will:

- Learn to control the slide show (play, rewind, stop, etc.)
- Create a short slide show with two MacPaint documents
- Add a transition
- Add a movie
- Add timers and sound
- Re-arrange documents
- Add a PICT and a Glue document

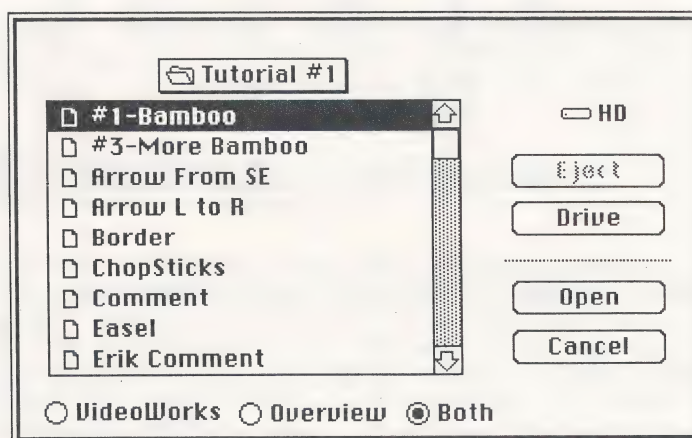
First we will watch the slide show, then we will then re-create it from scratch.

Watching the Animated Slide Show

Let's first open a finished version of the Overview document for Bamboo Industries that we will be re-creating in this tutorial.

1. Open the slide show named "**#1-Bamboo**" (in the Tutorial Folder on the *System, Program & Tutorials* Disk) as follows:

If you are already in VIDEOWORKS II: select *Open* from the File menu. A dialog box lists the documents available. Select the document called "**#1-Bamboo**" and click *Open*.

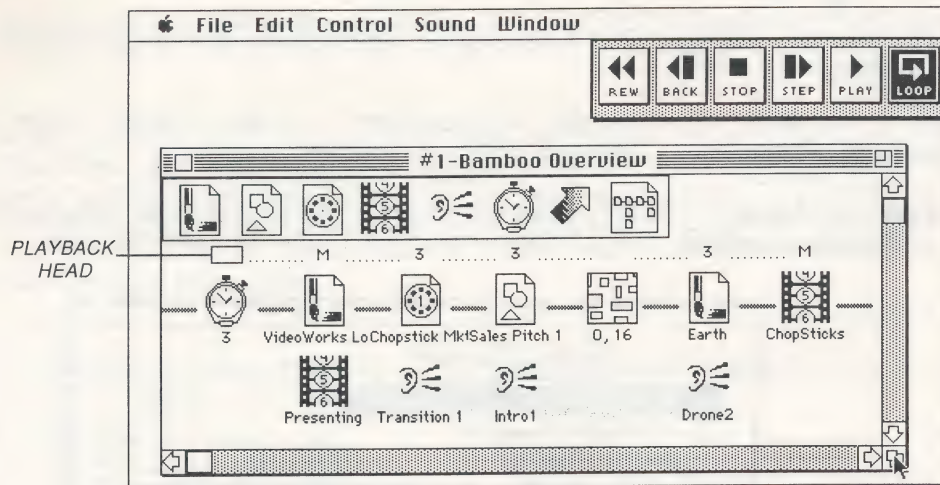


If you are at the Finder: click on the document named "**#1-Bamboo**" and select *Open* from the File menu.



#1-Bamboo

Your screen should now look like this:



The lower eleven icons you see in the Overview window represent the various documents that will appear in our presentation, as well other slide show effects. The documents play in succession from left to right. Don't worry about what they all mean just now. The white full-screen window behind the Overview window (yes there really is a window there!) is called the Stage window. This is where your slide show presentation will appear. The small window in the upper right is the Panel, which works much like the controls on a VCR (videocassette recorder).

This arrangement of icons is what we call an Overview document. An Overview document is a very small file, typically under 1K (that's about 1000 bytes or characters). Basically, it contains only the list of document names to be presented. The Overview document does not contain any pictures or movies itself. Thus, the Overview document requires that those original documents be intact and available. A change in any of those original documents would show up when you run the slide show.

2. Click the Loop button (in the Panel) so that it turns white:



This turns off Loop, so that the slide show will play only once.

3. Hold down the Shift key, and select **Play** from the Control menu.

This starts the presentation. It hides the Overview window and the Panel, bringing the Stage (the window where the slide show appears) to the front. Watch the slide show. When it is over, the Overview window will return.

Note: If you get the message "Can't find the file _____" then read the note titled "Finding missing documents".

If the Overview window doesn't go away when the slide show plays: you probably forgot to hold the Shift key when selecting Play. Let the slide show play through, and try again.

If the slide show doesn't stop: you probably forgot to turn off loop. To stop the slide show, type **Command-W**.

Note: From now on, we will use the following convention for Command keys: **Command-W** means hold down the Command key and press W, then release the Command key.

Finding Missing Documents

If any of the documents are missing when you try to play the slide show, VIDEOWORKS II will tell you that it "Can't find the file" and give the name of the file that was missing.

Why this happens: VIDEOWORKS II remembers not only the document name, but also the folder it is located in. If the file has been moved to another folder, or if the folder has been renamed, VIDEOWORKS II will no longer be able to find it.

Here is what you should do:

- A. Click on the "Look for it" button.
- B. The "Open File" dialog box appears. See if you can locate the file on the disk (the folder it is in may have been renamed, or the file may have been moved to another folder).
- C. If you can locate the file, select it and click the Open button otherwise go to step E below.
- D. Another dialog box appears asking if you want to "Change all other occurrences of _____ to _____" where the blanks are filled in with names of folders on your disk. This is really a shortcut. If you click on "Cancel", then VideoWorks will continue to look for the next file. If it doesn't find it, you will go through this process again. However, if you click on "OK", then VIDEOWORKS II will automatically make this same change to the other documents in the Overview that need it. Most of the time you should click OK in this dialog.
- E. If you can't locate the file in step C, then click "Cancel". You should quit to the Finder, and try to find the following files, and put them all in one folder. After you have found the files, VIDEOWORKS II may again say that it "Can't find the file", but this is because the names of folders have changed. Just go through steps A through D above.

Here are all the documents you should have in your Tutorials folder to play Tutorial #1 - Bamboo:

#1-Bamboo	Overview document
Chopstick Mkt	Glue Document
ChopSticks	VideoWorks document
Earth	MacPaint document
Presenting	VideoWorks document
Sales Pitch 1	MacDraw PICT document
VideoWorks Logo	MacPaint document

Using the Panel and Control Menu

Next we will learn how to use the Panel to control the slide show.

4. Pull down the Control menu just to look at it. Notice that the first five commands in the Control menu are the same as the buttons in the Panel.

So you have *three different ways* to control your slide show:

Click buttons on the Panel; or

Choose commands from the Control menu; or

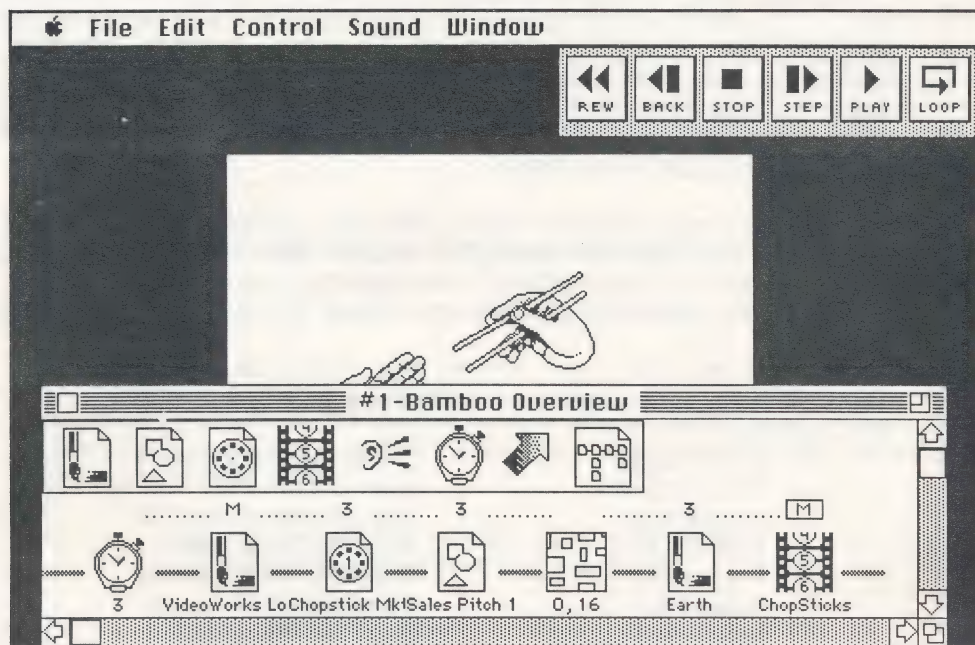
Use the Command-key equivalents of the Control menus.

There are two different ways to view a slide show:

- Full screen: this is when the Stage window is front (obscuring the other windows temporarily). You will use this for your final presentations.
- Overlapping windows: this is when the Stage window is behind all the other windows. You will use this while creating and editing your slide show.

To see how the Control commands work, we will remain in overlapping window view for now, so we can see the slide show in the background, and the Overview window in front of it. First let's make some room on the screen so that we can see the slide show better.

5. Using the resizing box in the lower right hand corner of the Overview window, shrink the Overview window, so that it is about the size shown in the illustration below, and drag the window to the lower part of the screen.



6. Click on the *Rewind* button in the Panel.

You should now see just a white background. Notice that the "playback head" (a box shape) moves to above the Timer icon in the overview window. The playback head shows your current position in the slide show. Since the Timer has no graphics associated with it, you see just the white background.

7. Click on the **Step** button in the Panel.

This takes you to the "VideoWorks Logo", and its clip animation "Presenting" and plays through the clip animation. Since we were only stepping (not playing), the animation stops at the end of the clip animation. It is waiting for your next step (or backstep) command. You can step through the entire slide show in this way. This is very useful if you want to talk about each slide before proceeding to the next one. In fact, it is so useful that there is a very easy shortcut for the step command:

8. **Click** the mouse pointer anywhere in the Stage window (i.e. where the slide show appears).

This should have stepped you to the next slide.

9. Turn **Loop** back on by clicking it in the Panel (it should turn black). Click on the **Play** button.

Now you are playing the slides one after the other, without stopping. The slide show can continue indefinitely in this loop. Watch the playback head as it moves from slide to slide. Wait until you see that the slide show has looped around, then:

10. Click the **Stop** button in the Panel.

This stops the slide show at whatever point you were at.

Note: There are other keyboard equivalents for these commands which are described in the Reference section. For example, the *numeric keypad* has equivalents for Play, Stop, Step, etc. Also the *space bar* is a "Pause" control. Don't try to use these now, but be aware they exist, in case you touch them accidentally.

Another thing to note about the Panel is that you can drag it to anyplace on the screen you want, by clicking in its gray area.

Moving the Playback Head

It is useful to be able to jump directly to any particular slide we want to look at. We do this by moving the playback head ourselves:

11. Click in the Playback Head area above the document "**VideoWorks Logo**" (where the letter "M" is).

Note: If you don't know where the Playback Head area is, turn back two pages to the first illustration of the Overview window.

The "VideoWorks Logo" document should now appear on the Stage, and the playback head (a box shape) appears above the "VideoWorks Logo" icon. You can try clicking the playback head above any of the other icons to see what they look like on the Stage.

Note: Icons that aren't associated with graphics, like timers and transitions (discussed below) will just appear as a white background.

Window Management

In general, it is tricky to work on a full screen presentation when you have other windows in the way. There are several ways to deal with this problem, but don't feel you need to become expert in them all to use VIDEOWORKS II. Instead, you should experiment until you find a method you are comfortable with.

For example, you can try to make the Overview window as small as possible so that you can see the Stage on the sides. This is what we did earlier. This tends to require a lot of moving and resizing of the window, unless the presentation is confined to a small area of the screen.

Or you can simply close the Overview window when you want to view the slide show. The advantage of this is you have most of the screen for the slide show, but can still see the menus and the Panel. To bring the Overview window back, select it from the Window menu (a shortcut is to use Command-3 to both close and open the Overview window).

12. **Try closing the Overview and using the various Panel buttons. Bring back the Overview by selecting it from the Window menu.**

In VIDEOWORKS II, selecting a window from the Window menu will "toggle" that window. That is, if the window is not visible it will appear. If it is visible (and the frontmost window) then it will become hidden.

13. **Click in the Playback Head area above the document "VideoWorks Logo" (where the letter "M" is).**
14. **Try toggling the Overview window with Command-3 several times. Each time you type Command-3, the Overview window will appear or disappear.**

But a purist will want to use the full screen for the slide show. There are two ways to go to using the full screen:

- Select the Stage window from the *Windows menu*.; or
- Hold the *Shift* key down while selecting the Play command or button.

The Shift-Play method also starts the animation going, while the Window menu method only brings up the full screen Stage. We already tried the Shift key method when we first watched the slide show. To see how the Window menu method works:

15. **Select *Stage* from the Window menu.**

You should now see only your current slide, with all the other windows and the menu bar hidden. Notice that you can still select from the menu bar, although the menus are hidden. You can still select all the Control menu commands, such as Step, Rewind, Play while in full screen view, or type their keyboard equivalents:

16. **Type *Command-Q*, the keyboard equivalent of the Play command.**

The slide show starts playing.

17. **Type *Command-W*, the keyboard equivalent of the Stop command.**

You are left in full screen view, and can give any of the other commands you desire.

Note: If you had entered full screen view by using the Shift-Play method, then giving the stop command would automatically bring back the Overview window (in that case you could skip the next step).

To get back to the Overview window:

18. Select **Stage** from the Window menu (If you can't find the menu, type **Command-1**).

The other windows reappear, and the Stage is again in the background.

Another good way to be able to see your slide show is to close the overview window. You can then use the Panel or the menus to control the slide show. Reopen the overview window when you need to edit again by selecting it from the Window menu.

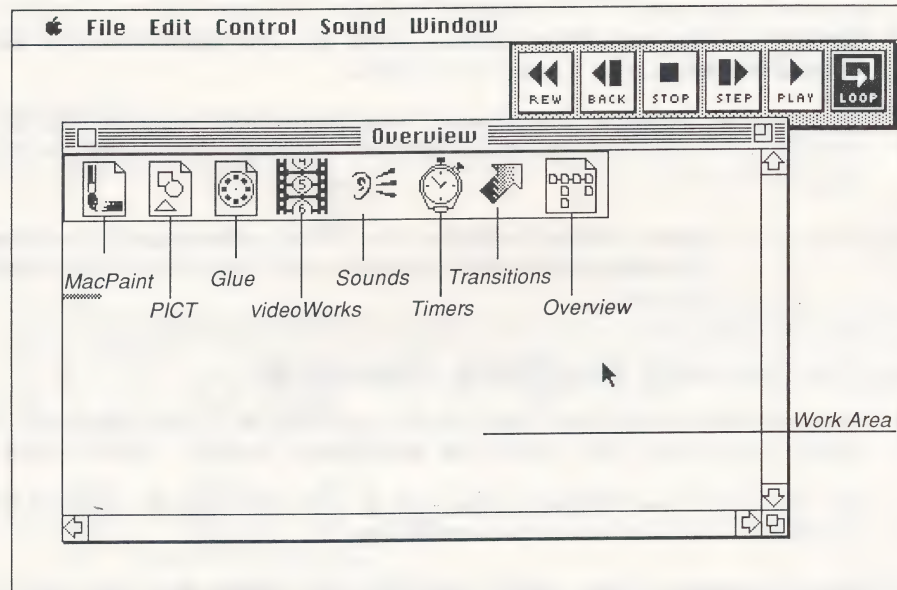
Re-creating the Animated Slide Show

We will now recreate this slide show (Overview document) from scratch.

19. Select **New** from the File menu.

Note: If you are asked to save changes then just click on "No".

The New command gives you a blank document to start from. Your screen should look like this:

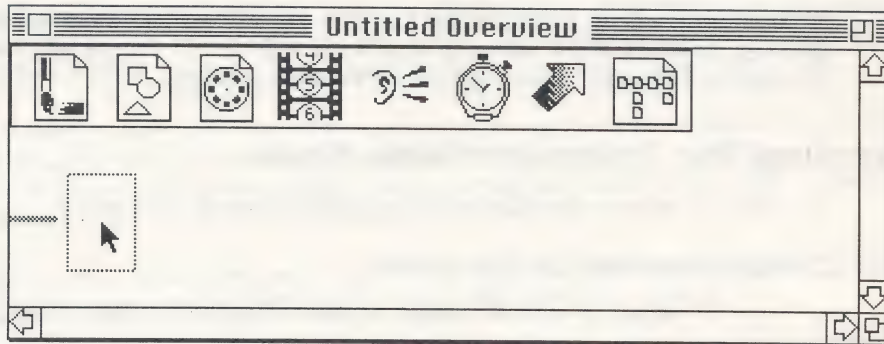


Notice the icons along the top and the work area below. You can drag these icons into the work area in any order. We will show you how to do this during the tutorial. The icons represent the types of documents you can use with Overview.

Adding the First MacPaint Document

20. Drag the MacPaint icon into the Overview work area as follows: Move the

pointer onto the MacPaint icon , click and hold down the mouse button, drag the icon into the Overview work area and release the button.



A file selection dialog box will now appear.

21. Within the file selection dialog, click on the MacPaint file named **"VideoWorks Logo"** and click **Open**.

A MacPaint icon appears with the name "VideoWorks Logo" below it. Typically, when creating a slide show, this MacPaint document would be a title page, showing the title of the presentation in large, bold letters.

Note: If you selected the wrong document: To remove a document, simply select it by clicking on it and choose **Clear** from the **Edit** menu.

Adding the Second MacPaint Document

22. Drag out the MacPaint icon again, placing it to the right of "VideoWorks Logo", but this time open the document named **"Earth"** and click **Open**.

Now you have two MacPaint icons side by side, which is the simplest kind of slide show imaginable. Let's look at what we have so far:

23. Play the slide show: **Hold** the **Shift** key down and click the **Play** button.

Watch the slide show. The two documents will be shown one after another, like a slide show. However, they flash by too fast. (On a two-floppy system, the sequence runs more slowly than on a hard disk system.)

Note: From now on, we won't tell you to stop the slide show after playing and watching it, but you should do so yourself by choosing the **Stop** command from the **Control** menu, clicking the **Stop** button, or by typing **Command-W**.

Adding a Timer

Let's insert the Timer to slow down the slide show.



24. Move the pointer onto the Timer icon, click and hold down the mouse button, drag the Timer into the Overview work area just to the left of the first MacPaint document, and release the button.

The watch icon appears, and there is a blinking text cursor underneath it, indicating that we can type in the amount of time we want.

25. Type the number 3 (which specifies three seconds) and type either the Return or Enter key.

Notice the 3 appears below the Timer and above each MacPaint document. This indicates the MacPaint documents will play for 3 seconds each. Timers affect all documents that come after them, until the next timer.

26. Play the slide show: Click the Play button.

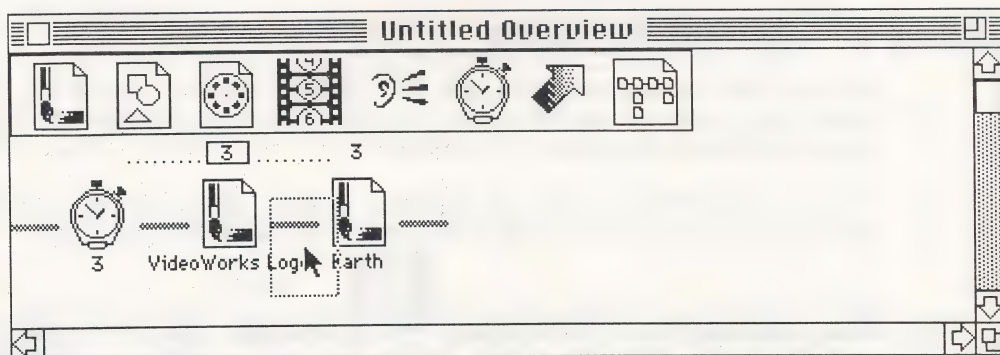
Watch the slide show. The documents will be shown for three seconds each. You can also see the playback head (the box around the number 3) moving. It indicates which document is currently being displayed on the Stage.

Adding a Transition

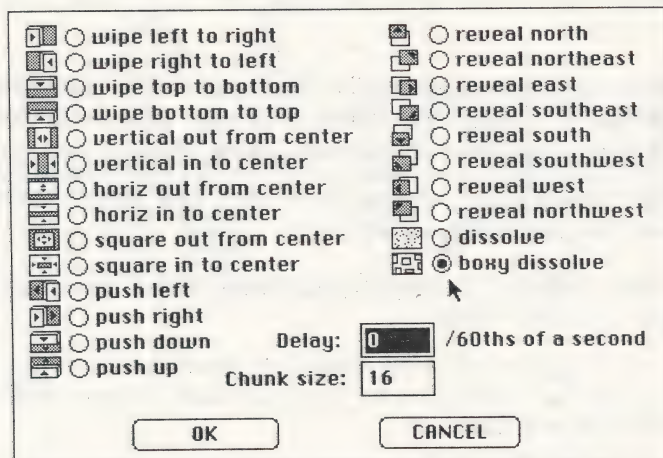
Let's add a transition (a fancy visual effect) between the two MacPaint documents.



27. Drag the Transition icon into the Overview work area and place it between the two MacPaint documents, as shown.



28. A dialog box appears with many choices for the transition. Click on *Boxy Dissolve* and then click "OK".



As you can see, there are a wide variety of transitions available at the click of a mouse!

29. Play the slide show: Click *Rewind*, then holding the *Shift* key down click the *Play* button.

This time you should see the first MacPaint document dissolve into the second. The dialog box also gives you the option to change the speed at which the boxy dissolve occurs, and how "chunky" the transition is (see the "How To Animate" section for details).

Note: When you are trying out other transitions later on, keep in mind that one of them (dissolve) works only in full screen view.

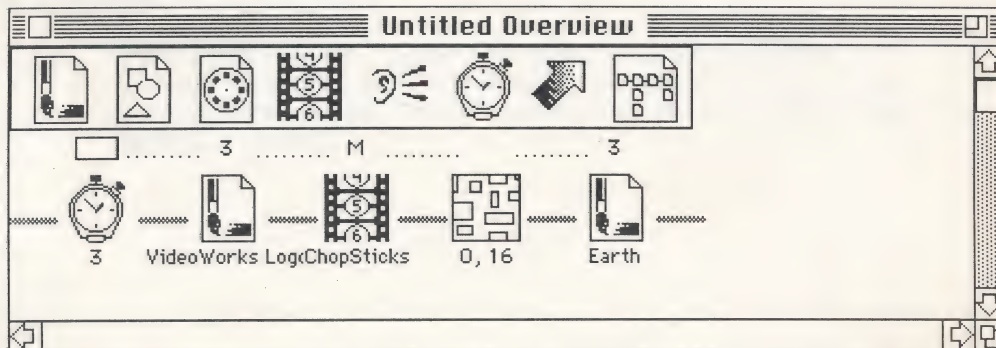
Adding a VideoWorks Movie

Up to this point we have created a slide show with only MacPaint documents. It is important to realize that you do not *need* to include VideoWorks movies in a slide show – you can just keep adding MacPaint or other graphics documents.

However, VideoWorks movies and clip animations can make your presentation more dramatic. Now let's add a VideoWorks movie in between the two MacPaint documents.



30. Drag out the VideoWorks icon between the "VideoWorks Logo" and the boxy dissolve icon. When the file selection dialog appears, click on the file named "*ChopSticks*" and click *Open*.



31. Play the slide show: Click *Rewind*, then holding the *Shift* key down click the *Play* button.

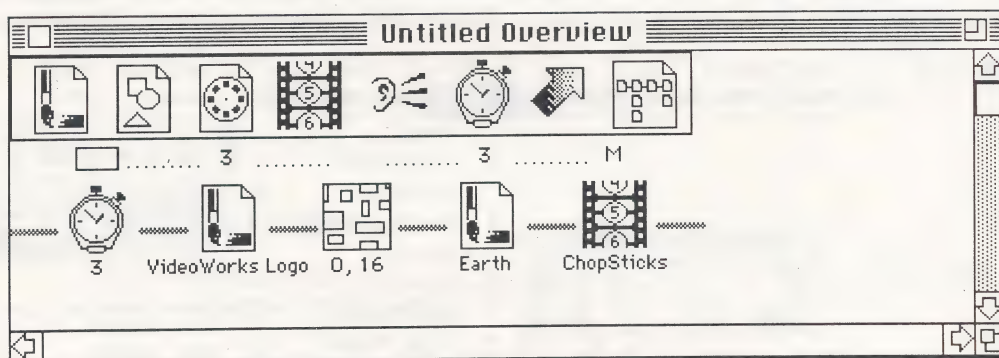
You should see the movie inbetween the two MacPaint documents. You can use this technique to show many movies and MacPaint documents.

The movie runs until it is over. It is not governed by the Timer (you can tell this because the "M" above the movie indicates that it runs for the whole length of the movie). Options are available to make the movie repeat, start after a delay, or play for only the Timer length (see Tutorial #3, or the "How To Animate" section).

Reorder the Slides

Let's see how simple it is to re-order these slides:

32. Move the pointer onto the document *"Chopsticks,"* click and drag it to the right of the *"Earth"* document.



33. Play the slide show: Click *Rewind*, then holding the *Shift* key down click the *Play* button.

The movie now plays after the second MacPaint document, as you would expect.

Adding PICT and Glue documents

Now let's add more documents to fill out the slide show.

34. Drag the Glue icon  into the work area just to the right of the VideoWorks Logo. When the file selection dialog appears, click on the name: *"Chopstick Mkt"*.

This is a chart that was created with Microsoft's Excel, and saved to disk using Glue from Solutions, Inc. Using Glue, you can easily bring into the Overview window documents from virtually any Macintosh program.

35. Drag the PICT icon  into the work area and place it after the Glue icon. When the file selection dialog appears, click on the name: *"Sales Pitch 1"*.

This is a bullet chart that was created with Living VideoText's MORE, and saved in PICT format. PICT is a file format that can be read and created by Apple Computer's MacDraw, and various other programs.

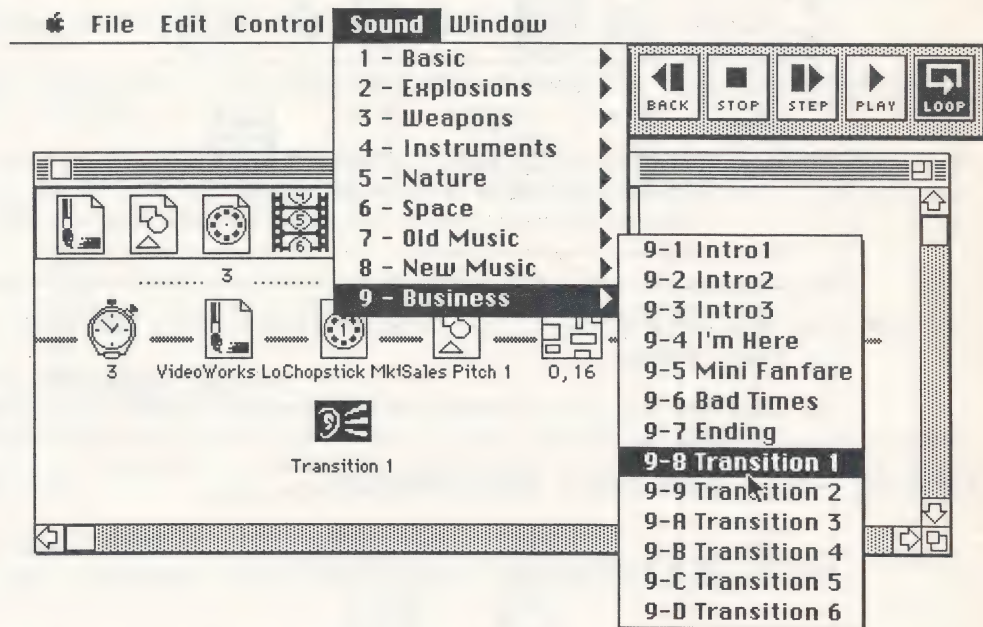
36. Play the slide show: Click *Rewind*, then holding the *Shift* key down click the *Play* button.

You may notice that "Sales Pitch 1" is not really displayed long enough to read it. We could make this picture run longer, by adding another Timer right before it with a longer timing. For now we will leave it as is.

Adding Sound

Before doing the next step, you may want to make your Overview window a little taller, to accommodate a second row of icons.

37. Drag the sound icon  into the work area, positioning it below "Chopstick Mkt" as shown in the next illustration.
38. Pull down the Sound menu and pause at *Business*. A submenu pops up. Still holding the mouse button down, slide the pointer sideways to the submenu, then move down to *Transition 1*, and release the mouse button.



The name of the sound, "Transition 1," appears beneath the sound icon (note: this has nothing to do with the Transitions discussed above).

Note: If you have System 3.2, instead of the latest System (4.1) then the sound menu will work differently for you. You will have to select the desired submenu first, then the sound within that submenu. Please look up the Sound menu in the Reference section for more details.

Note: If there are no menu items in your sound menu, then you don't have the Sounds file in the correct place on your disk. Please look up "Sound Files" in the Reference section for more details.

39. **Play the slide show:** Click *Rewind*, then holding the *Shift* key down click the *Play* button.

The animated slide show now plays with sound accompanying it.

Note: You can control whether VIDEOWORKS II will play sounds at all.

VIDEOWORKS II will play sounds when the menu item "Sound Is On" in the Control menu is checked. To turn sound off, select that menu item and the check mark goes away.

If you don't get sounds: Make sure that the Sound Is On item is checked in the Control menu. Also make sure the volume is turned on in the Control Panel desk accessory.

Now, let's add sounds to some of the other graphics in the same way.

40. **Drag another sound icon** to below the "Sales Pitch 1" document. In the Sound menu, choose the *Intro1* sound from the *Business* submenu.
41. **Drag another sound icon** to below the "Earth" document. In the Sound menu, choose the *Drone2* sound from the *Space* submenu.

You can again click *Rewind* and *Play* to hear the results.

Adding a Clip Animation

Next we will add a clip animation. A clip animation is a short VideoWorks movie that is designed to enhance a slide show presentation.



42. **Drag the VideoWorks movie icon** into the work area, below the first MacPaint document, "VideoWorks Logo".
43. When the dialog box appears, select *"Presenting"* and click *Open*.
44. **Play the slide show:** Click *Rewind*, then holding the *Shift* key down click the *Play* button.

The letters of the word "Presenting" slide into place above the VideoWorks Logo. There are numerous options that you can set for clip animations, for example, setting its timing and positioning. These will be described in the third tutorial.



You may be wondering what the Overview icon is for. It is merely for convenience, like folders in the Macintosh Finder – used to keep documents together. With it, you can include a slide show you prepared previously in your current presentation. Or you can break up a long presentation into smaller sections that may be easier to work with. See the "How To Animate" section for details.

You have completed your first animated slide show. At this point you might want to add some more transitions, or rearrange the sequence of slides to suit you. Have fun! When you are done:

45. **Choose *New* from the File Menu.** A dialog box appears with the message "Do you want to save changes?" Click *No*.

You can now Quit to the Finder, or continue on to some of the other tutorials.

Tutorial #2 - The Movie Show

This is a fun and quick tutorial. It will show you how to use the Overview window to quickly and easily view large numbers of separate VideoWorks movies.

You will need either two 800K floppy disk drives, or a hard disk to run this tutorial because it displays every movie on the *Clip Animation, Artwork & Movies* disk.

1. **Open the Overview document "*#2-Movie Show*."** (Unlike the other tutorials this one is on the *Movies* disk).
2. **Play the Overview:** Holding the *Shift* key down, click the *Play* button.

You will see most all of the movies on the *movies* disk.

Note: If any of the movies are missing, VideoWorks II will tell you that it can't find them, and give you a chance to locate them (perhaps they were moved to a different folder or renamed). See the note on "Finding Missing Documents" after step 3 of Tutorial #1 for more information.

If after looking for the files you couldn't find some, you can clear the icons of the missing documents from the Overview. To clear an icon, click on it and select *clear* from the *Edit* menu.

3. **Hold down the Command key, and type a "W".**

This is the keyboard equivalent of the *Stop* command. It should stop the movies and bring back the Overview window and the Menu bar.

Next we will show you how to recreate this Overview document with a single command.

4. **Select *New* from the File menu.** If you are asked to save changes, click "*No*".
5. **Select "*Quick Create*" from the Edit menu.**

You will see a dialog explaining that *Quick Create* will allow you to add all the documents in a particular Macintosh folder or disk by selecting *any one document* from that folder.

6. **Click *Continue*, and a file selection dialog appears.** Open the folder called "*Movies*" (if it is not already open).

At this point you can select *any* of the movies in this folder, and *all* the movies in the folder will be added to your Overview document. It doesn't matter which of the documents in the folder you select.

7. **Select the movie called "*Tangram*" and click the *Open* button.**

After a second, all the movies from the *Movies* folder appear in your Overview. If you want to rearrange their sequence, or add in transitions, feel free to do so now.

8. **Play the Overview:** Click *Rewind*, then holding the *Shift* key down click *Play*.

Tutorial #3 - More Bamboo Industries

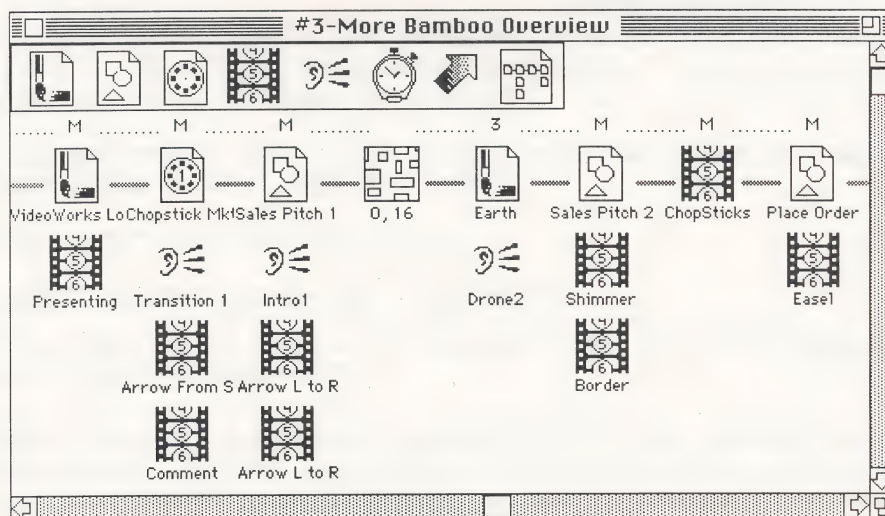
This animated slide show is somewhat more advanced than *Tutorial #1 - Bamboo*. It demonstrates how to:

- Use the Step command in new ways
- Set the timing and position options for a document
- Show two movies simultaneously, one in front of the other
- Cut, copy, paste, and duplicate icons
- Annotate a slide with text

For this tutorial you must have the following documents, preferably all in a single folder:

#2-More Bamboo	Overview document
Arrow From L to R.....	VideoWorks document
Arrow From SE.....	VideoWorks document
Border	VideoWorks document
Chopstick Mkt.....	Glue Document
ChopSticks.....	VideoWorks document
Comment	VideoWorks document
Earth.....	MacPaint document
Easel.....	VideoWorks document
Place Order.....	MacDraw PICT document
Presenting.....	VideoWorks document
Sales Pitch 1.....	MacDraw PICT document
Sales Pitch 2.....	MacDraw PICT document
Shimmer	VideoWorks document
VideoWorks Logo	MacPaint document

1. To see the Overview you are about to create, open and play the document **"#3-More Bamboo"**.



Note: If any of the movies are missing, VIDEOWORKS II will tell you that it can't find them, and give you a chance to locate them (perhaps they were moved to a different folder or renamed). See the note on "Finding Missing Documents" after step 3 of Tutorial #1 for more information.

We will be building up from where we left off in Tutorial #1, so:

2. **Open the Overview called "#1-Bamboo". Immediately do a *Save As* (in the File menu) to rename your document to something else.**

Doing the *Save As* will ensure that you don't change the tutorial file, so that you can use it again later on.

3. **Drag out a VideoWorks icon to below the Glue document "Chopstick Mkt". Select the clip animation "*Arrow From SE*".**

SE stands for "South-East", which is the direction this arrow will enter from.

More About the Step Command

Here are two more useful ways to use the Step command:

- While the Overview is *playing*, Step functions as a "Skip" command to skip forward to the next slide and keep playing. This is useful for when you are bored with a movie.
- To repeat the current slide or movie, hold the *Shift* key down while clicking on the Step button (it also works with the menu and keyboard equivalents).

4. **Close the Overview window, click *Rewind*, and *Play*. Halfway through the "*Presenting*" animation, click *Step*.**

This will skip the rest of "Presenting" and start playing the "Arrow From SE" animation you just added.

5. **Click *Stop*. Move the playback head to above "*Chopstick Mkt*". Holding the *Shift* key down, click *Step*.**

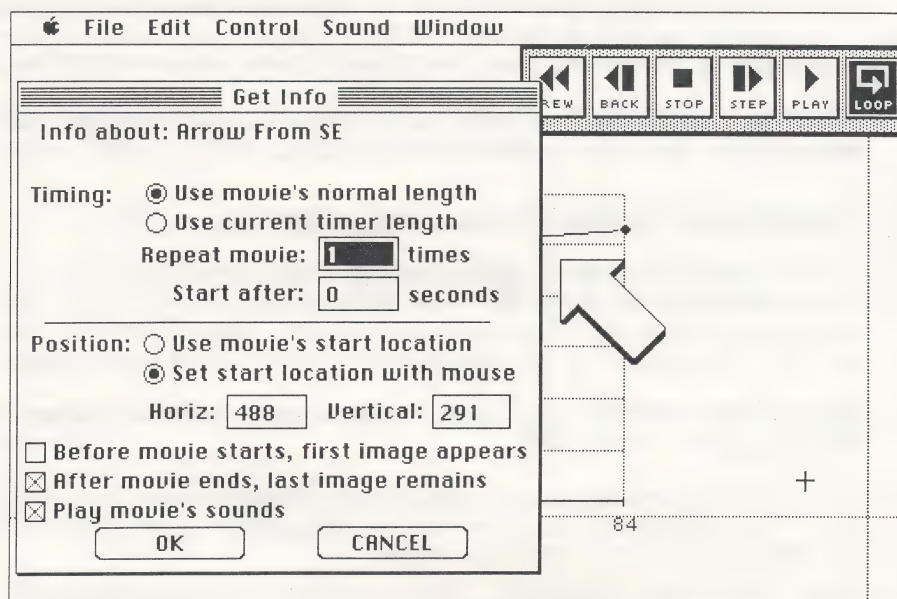
You will see the "Arrow From SE" animation play through once and stop. You can Shift-Step on this same slide as often as you like. Please feel free to use these variations of the Step command anywhere in this tutorial.

Positioning VideoWorks Documents

You may have noticed that the arrow we added is not positioned quite right. We want to have it end up pointing at the second to last data point on the Chart. How can we do this?

6. Click on the icon for "Arrow From SE" (make sure it is the only icon selected).
7. Select "Get Info" from the Edit menu.

Your Overview window temporarily disappears, and the Get Info box appears:



There are many options available in the VideoWorks Get Info box. For now, we will concentrate on the Position options. Notice first of all that we are using the movie's own starting location (we haven't yet set the starting location with the mouse).

8. Move the Get Info box to the left hand side of the screen, so that the right two points on the graph are visible.

This way you can see the Chart and arrow better.

9. Move your mouse out over the Stage window.

Notice the cursor turns into a cross. This indicates that you can set the starting location by clicking the mouse in the Stage window.

Think of setting the starting location as an archer firing an arrow. The archer can only control where the arrow starts from, though with enough skill the destination can also be controlled. This is what you will be doing here as you try to control the arrow on the Macintosh screen.

10. Click the mouse somewhere in the lower right corner of the Stage window. (If nothing happens right away, be patient, don't click the mouse repeatedly).

The animation started! You have set the starting location of the animation.

When the animation stops you can see the **starting location** that you just set as a pair of gray lines on the screen (see the illustration above). Notice where the arrow wound up. If it didn't reach the second to last data point of the graph, then keep trying till you get it reasonably close.

You can use the gray starting location lines to get the animation very close to where you want it to wind up. First, estimate how far off the arrow is from where you want it. Suppose that it overshot the mark by one inch. Then you should click the next time one inch away from the gray starting location lines. Keep doing this until you are as close as you want to be.

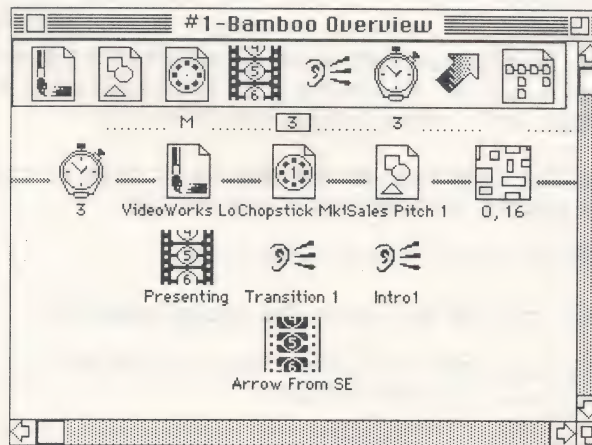
11. Click **OK** in the Get Info box. Click **Rewind**, and holding the **Shift** key down, click the **Play** button in the Panel.

Using Timers on VideoWorks Documents

You may have noticed that the arrow does not stay in its final position very long before the next slide comes along. We would like to use the timer to set the length of this slide, instead of using the length of the movie. First notice that above the "Arrow From SE" column of icons is the letter "M". As explained earlier, this indicates the slide is timed by the length of the movie.

12. **Get Info** on "Arrow From SE". Click on the button labeled "Use current timer length". Click **OK**.

Now look at the time shown above the "Arrow" column of icons, you should see the number 3 there. If you play through the Overview now, this slide will persist after the animation finishes for a total length of 3 seconds as you'd expect.



Showing Two Movies Simultaneously

13. Drag out a VideoWorks icon underneath "Sales Pitch 1". Select the clip animation "Arrow L to R" from the file dialog.
14. *Get Info* on this movie. Set the starting location so that the arrow stops just to the left of the second line of text. Click *OK*

The Option key is a shortcut for *duplicating* an icon in the Overview window. Use it now to create a second arrow for this slide:

15. Holding down the Option key, drag the "Arrow L to R" icon down an inch within the Overview window.

You should now have two "Arrow L to R" icons.

16. *Get Info* on the second "Arrow L to R." Set the starting location so that the arrow stops just to the left of the third line of text. Click *OK*.

⇒ Chopstick sales off in the Far East

⇒ The West: a growth opportunity

Delaying a Movie

These two movies are now moving exactly in sync. We want the second one to start a second or so after the first.

Note: There is a shortcut for doing *Get Info* on an icon, which is to double click on that icon. Try it!

17. *Get Info* on the second "Arrow L to R." Enter a 1 in the box labeled "Start after ___ seconds."

After you type in the number, the animation will automatically start.

⇒ Chopstick sales off in the Far East

⇒ The West: a growth opportunity

If the timing looks OK to you:

18. Click *OK*. Click *Rewind*, and holding the Shift key down, click *Play* the Overview from the beginning.

Using Timers (continued)

Again we want this slide to last a little longer than it is now, so that we can read all the text. Since we have two clip animations in this column of icons, we will have to set *both* of them to use the Timer.

19. **Get Info** on the first "Arrow L to R", and click on the button labeled **"Use current timer length"**. Click **OK**.

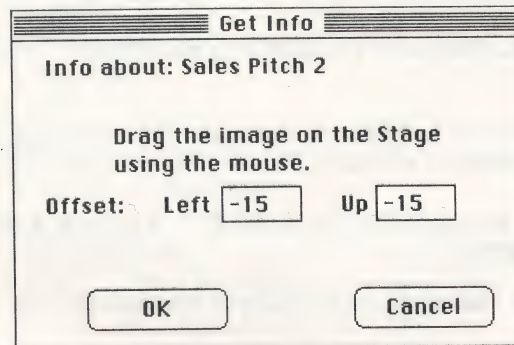
Notice that there is still an "M" at the top of the column. The "M" will turn to a "3" only when *all* the clip animations in the column use the Timer.

20. **Repeat step 19 for the second "Arrow L to R"**.

Now you should see a "3" above this column of icons. If you play the movie now, this column will appear on the screen for three seconds as you'd expect.

Positioning a Graphic Document

21. Drag out a PICT icon between "Earth" and "Chopsticks," and select the document called **"Sales Pitch 2"**.
22. **Get Info** on this document. Move the Get Info box to one side. When you move your cursor over the Stage, it becomes a hand tool.



23. Use the hand tool on the Stage to drag the image, centering it. Click **OK**.

Note: In all the Get Info boxes, you can find out the "full pathname" of the file by clicking on the file name at the top of the box. The full pathname lists all the folders that that file is in.

Repeating an Animation

24. Drag out the VideoWorks document called **"Shimmer"** below the PICT document **"Sales Pitch 2"**.

Shimmer is an animation that is invisible unless it passes in front of something else. It moves from left to right. We will have it pass over the bottom line of text.

25. **Get Info** on "Shimmer." Set the starting location to the left of the bottom line of text.

Industry leader

You can see that the Shimmer is much too brief. We will extend it by setting its number of repetitions.

26. Type a 4 in the box labeled "Repeat movie ____ times."

You should see the animation start automatically soon after typing, and as you'd expect it repeats 4 times.

While we're at it, let's add a border to this slide:

27. Drag out the VideoWorks movie "Border" to below the "Shimmer" icon.

To see the border, replay the document from the beginning, or use the Shift-Step shortcut to replay the current slide.

Delaying a Movie (continued)

28. Drag out the PICT document called "Place Order" to the end of the Overview (after Chopsticks).

29. Drag out the clip animation "Easel" below the PICT document "Place Order."

30. Get Info on the PICT document "Place Order". Move the Get Info box so that you can see the easel. Position the PICT document centered in the easel.

Notice that as you move the PICT document, the easel disappears, but it immediately reappears when you let up on the mouse.

31. Play the Overview: Click the playback head above "Chopsticks", and then holding down the Shift key, click on Play.

You will see the easel animation happen almost immediately after it appears, giving us no time to read the sales message. To remedy this:

32. Get Info on "Easel." Set the delay time to 4 seconds (the box labeled "Start after ____ seconds").

The animation automatically starts after you type, and there is now time to read the message, but the easel doesn't appear at all till after 4 seconds! The remedy for this is simple:

33. Get Info on "Easel." Check the box labeled "Before movie starts, first image appears."

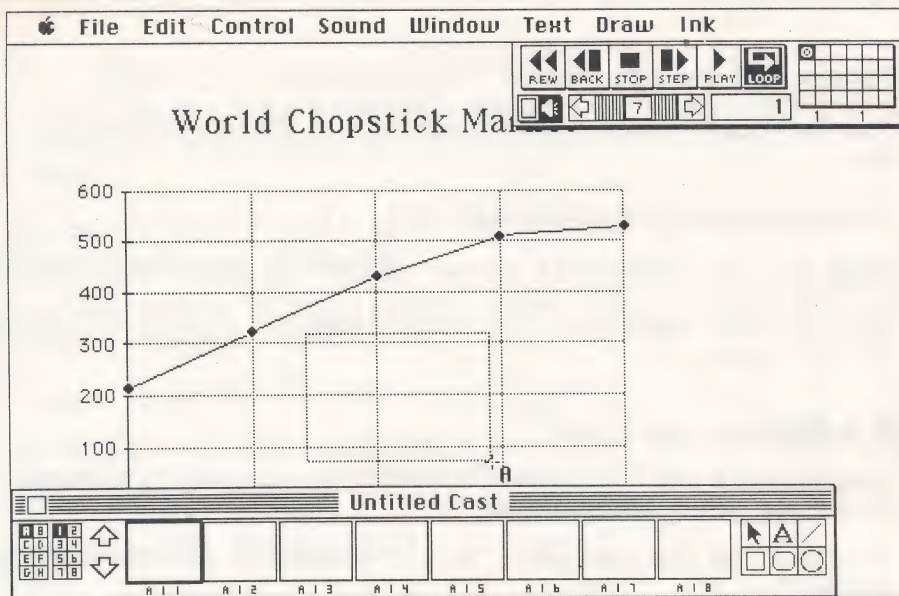
Annotating a Slide

Our last assignment is to add an annotation to the "Chopstick Mkt" slide. We want to add the words "Demand is Peaking" to the slide. To do this, we will create a very simple VideoWorks movie consisting of only these words. Later tutorials will go into more detail on using VideoWorks. For now, we will just walk you through the steps without too much explanation.

34. Drag out a VideoWorks icon to the bottom of the "Chopstick Mkt" column of icons. Click the New button in the file dialog. Click Yes in the "Save changes?" dialog.

You are immediately launched into VideoWorks. In the background you still see the "Chopstick Mkt" slide, though without the arrow clip animation.

35. If the Cast window is not open, go to the File menu and select it. If there are any other windows open besides the VideoWorks Panel, close them.



36. Click on the "A" tool in the right side of the Cast window. Use it to drag out a square about 1 1/2 inches wide on the Stage.

You should now have a blinking cursor in a Text box.

37. Type the words "Demand is Peaking." From the *Text* menu, choose New York as the Font, and 18 as the Size. If you need to reposition the text box, you can grab it on its gray edges.

Demand is
peaking

38. Select *To Overview* from the File menu. Answer "Yes" to the "Save changes?" dialog, and save this file under the name "My Comment."

You will now find yourself back in the Overview window, and you can see the VideoWorks icon "My Comment" there.

39. **Play the Overview:** Click *Rewind*, and holding the *Shift* key down, click *Play*.

You should now see your annotation appearing on top of the "Chopstick Mkt" slide.

After you learn more about using VideoWorks (as opposed to Overview) you may want to learn more about how to go back and forth between them. This is covered later in the manual. Note that it is also possible to go back and forth between Overview and MacPaint, or MacDraw (see the Launch Editor command in the Reference section).

Congratulations! You've learned a lot about how to make snappy looking animated presentations. To finish off:

40. If you want to save this Overview, select "Save As..." from the File menu, and save the file under a different name. Otherwise, just select *New*, and answer "No" to the "Save Changes?" dialog.

Tutorial #4 - Bouncing Face

This exercise is a simple, brief introduction to the animation side of VIDEOWORKS II. You will first watch a short movie, then re-create it.

In this tutorial we will:

- Learn Play and Stop
- Create a new VideoWorks animation
- Draw a picture in Paint
- Learn Real-Time Recording

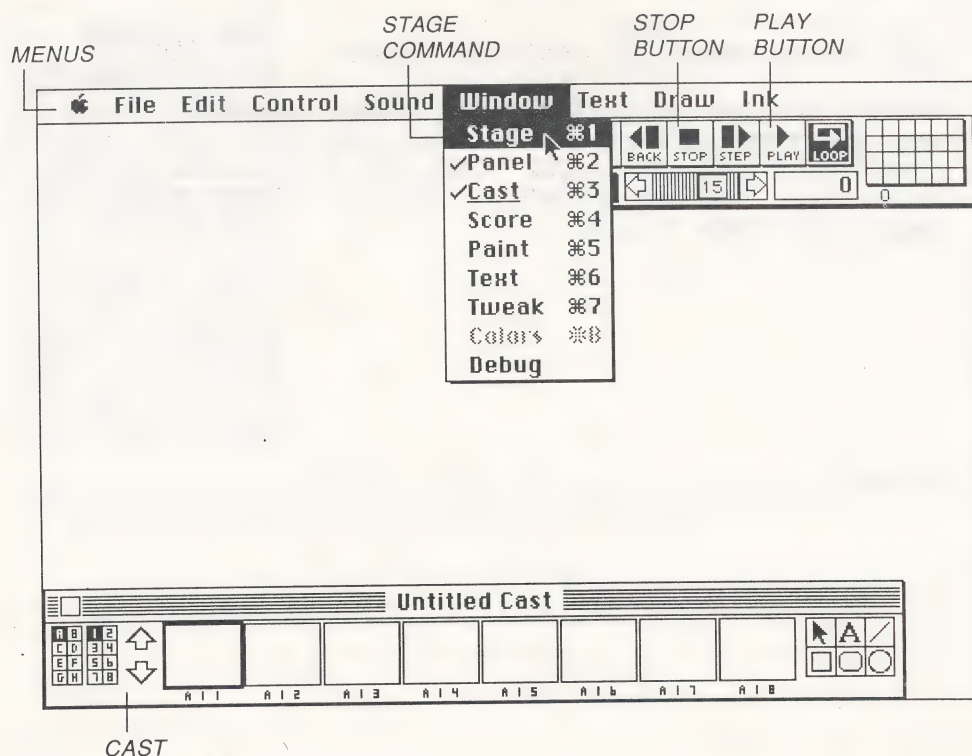
The VideoWorks Screen

Many of the terms used in VIDEOWORKS II – Stage, Cast, movie, Score, and frame—are borrowed from the theatre and film industries. You can think of VIDEOWORKS II as a play, with these analogies:

<u>Theatre</u>		<u>VideoWorks</u>
Cast (people)	=	Cast (artwork)
Script to guide people	=	Score to guide artwork
Theatre stage	=	Stage window

In working with VideoWorks, you first create your Cast of characters (your artwork), then by moving the Cast around on the Stage, you create a Script (Score). At all times, what is on the Stage is a reflection of what is in the Script (Score).

This first VideoWorks tutorial (as opposed to Overview tutorial) will show you the easiest way to move a Cast member around on the Stage to create a Score. It is called Real-Time Recording. It will also show you how to create a simple Cast member.



Watching the Movie

1. Open the movie named "*#4-Bouncing Face*" (in the Tutorial Folder on the Program Disk) by:



Bouncing Face

If you are already in VIDEOWORKS II: select *Open* from the File menu. A dialog box lists the documents available. Select the document called "*#4-Bouncing Face*" and click *Open*.

If you are at the Finder: click on the document named "*#4-Bouncing Face*" and select *Open* from the File menu.

2. Click the *Play* button  (in the Panel). Watch the animation. Notice that it repeats.

Study this movie – the size of the face and the way it moves. Remembering it will help you re-create it.

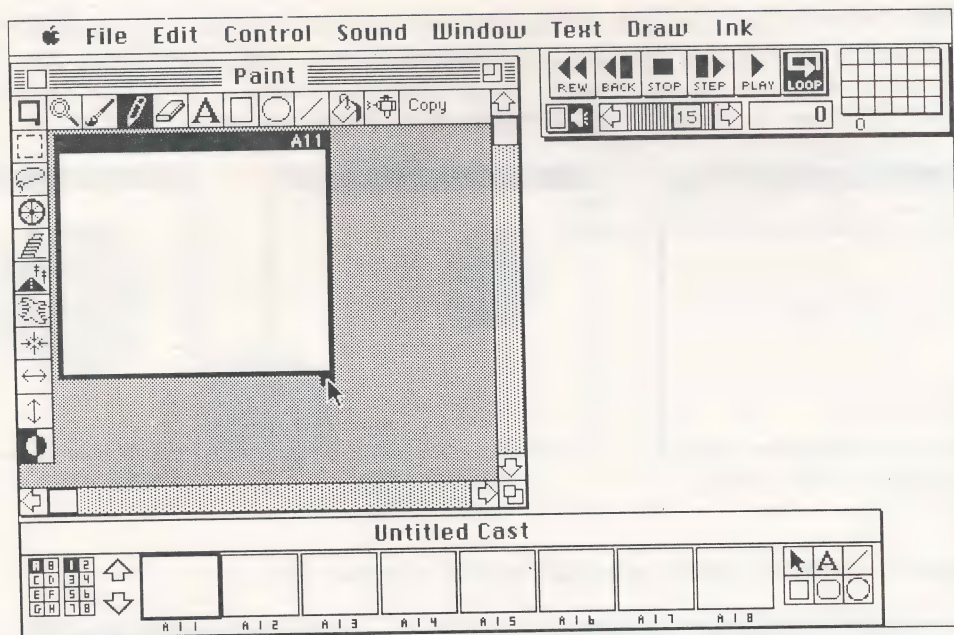
3. When you are done watching, click the *Stop* button.



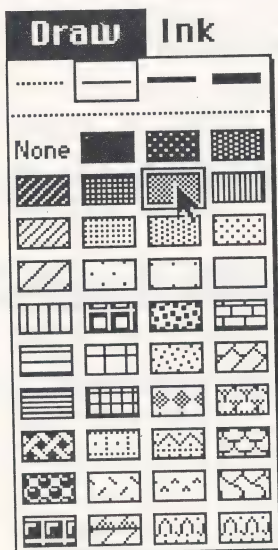
Next we will re-create this movie.

Creating the Circle

4. Choose *New* from the File menu. (If you are asked "Save changes?," click "No").
5. Choose *Paint* from the Window menu.
6. Click on the *Easel* . An easel appears.
7. Enlarge the Easel by pulling on the handle as follows: Move the pointer onto the resize handle (the tab in the lower right of the easel – see the illustration on the next page). Click and drag the mouse button down and to the right. Release the button when the Easel is about three times larger than it was initially.

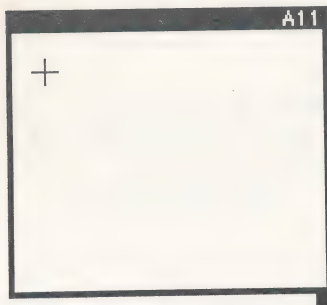


8. Click the *Circle*  at the top of the Paint window.
9. Select the gray fill pattern  from *Draw* menu.

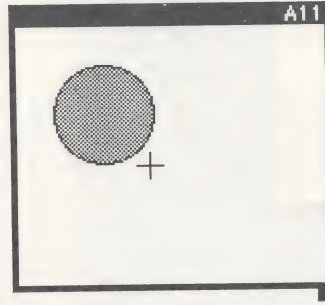


You won't see the effect of selecting the gray fill pattern until you draw the circle in the next step, where you will be drawing the gray circle you saw in the movie.

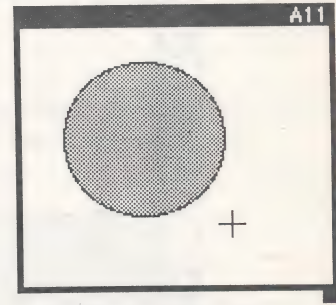
10. Move the pointer into the white space of the easel,³ as shown in the illustration below, so you see a crosshairs $+$. Press and drag the mouse button down and to the right. Move the crosshairs diagonally across the easel to draw a round ball. Release the button.



Before circle is drawn

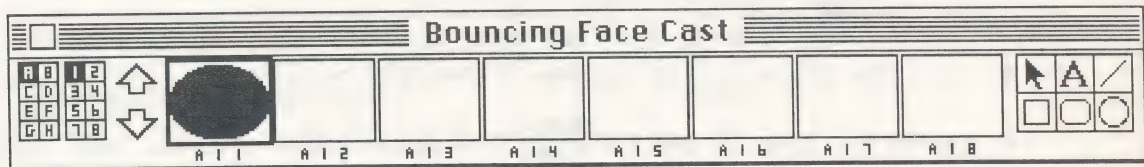


While the circle is being drawn



After circle is drawn

Notice the circle also appears in the Cast window, at position A11.



Note: If you want to try drawing the circle again, double-click on the Eraser  to erase what you have drawn and repeat steps 8, 9, and 10 to re-draw the circle.

The Cast holds all of the artwork to be animated. This animation will have only one piece of artwork, (or castmember).

11. **Close Paint by clicking on the close box at the upper left corner of the window. (If any other windows besides the Cast and the Panel are open, close them as well.)**

Notice that the ball you drew is currently selected in the Cast window, the selection is indicated by a heavy black box appearing around it.

Real-Time Recording

Next we will make the circle we just drew bounce around the Stage.

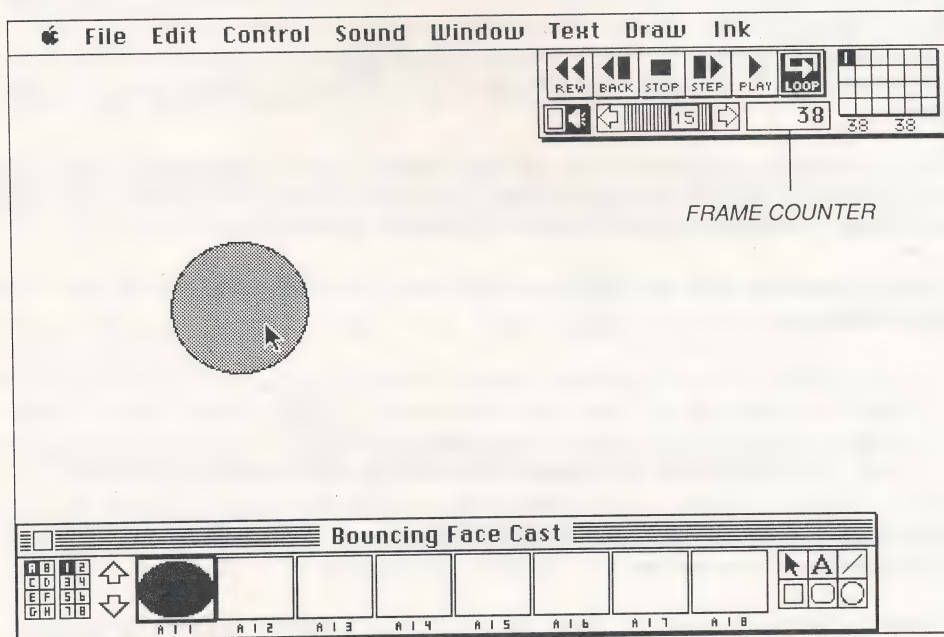
12. **Move the pointer to the left edge of the Stage, where there are no other windows.**

Read this entire step first, then do it all at once in one smooth action, without hesitating:

13. **Holding down the Option and Command keys, drag the mouse across the Stage and back, then release the mouse button.**

As you dragged the mouse, the ball should have appeared at the pointer. The movie you just created will repeat continuously (if the Loop button in the Panel is black). Notice the Frame

Counter **38** in the Panel is running. By dragging the mouse with the Option and Command keys down, you created several "Frames" of a movie.



Note: If you want to try re-doing this previous step, choose Burn Scene from the Edit menu. (Burn Scene erases the movie, leaving the castmembers). Then repeat the previous step.

Amaze Your Friends

14. While the ball is still bouncing, open Paint by choosing Paint from the Window menu.

15. Select the *Paintbrush* .

16. Select the black box in the Draw menu.

17. In Paint draw two eyes in your circle. Notice the eyes appear on the bouncing ball.

Presto! Whatever you draw on the circle in Paint is duplicated exactly on the circle moving around on Stage. This is an example of how VideoWorks maintains direct links from Paint to the Cast to the Stage.

18. Draw a mouth on the ball in Paint.
19. Select *Stage* from the Window menu. This gives you a full-screen view.
20. When you are done watching, hold the *Command* key () and press *W* to stop the animation. Select *Stage* again to bring back the menus.

Congratulations! You have completed your first VideoWorks animation.

21. Choose *New* from the File Menu. Answer "No" to the "Do you want to save changes?" dialog box.

Tutorial #5 - The City

As we have mentioned, much of the VideoWorks terminology is borrowed from theater. Briefly, the animation process follows this general procedure: Each separate piece of artwork (or "castmember") is created in **Paint**, and automatically becomes a member of the **Cast**. Individual castmembers are then dragged out onto the **Stage**, where their movements are recorded into the **Score**.

Other terminology comes from film and audio technology: A **channel** is an independent track of information (like the left and right channels of a stereo system). A **frame** is one snapshot of the movie – as in one frame of a reel of film. Frames are recorded in the **Score**.

If you are familiar with the program **MacDraw**, then here is yet another way to think about VideoWorks:

VideoWorks is very much like a series of MacDraw pictures (each with a maximum of 24 objects), flashed on the screen one after another. Each **frame** is like a single MacDraw picture, and the **Score** is where the succession of MacDraw pictures is recorded, one after the other. As in MacDraw, the separate objects can be moved about independently.

Since VideoWorks can easily handle up to 1000 or more frames of animation, this is like having 1000 MacDraw documents at your fingertips!

You will first get to watch the movie and then go back and re-create it step by step. You might check off each step as you do it. It is important not to skip any steps.

In this tutorial, we will:

- Practice using the controls on the Panel
- Use Burn Scene
- Learn Real-Time Recording
- Use the Channel Indicator (on the Panel)
- Introduce the Cast
- Introduce the Score
- Learn In-Betweening
- Use a Film Loop
- Add sound

Watching the Animation

1. Open the movie named *"The City"* (in the Tutorial Folder).
2. If there are any windows open besides the Cast and the Panel, close them at this time.
3. Press **Command-1** (for Stage) and then **Command-Q** (for Play).

Watch the movie, noticing that it repeats. There should be sound accompanying the movie. Once again, as you watch, remember the action in this animation, because we will soon be re-creating it.

4. Press **Command-1** to bring back the Cast and Panel windows.

Notice the animation continues to run with or without the windows displayed. **Command-1** merely toggles all the windows on and off.

5. While the movie runs, press *Command-1* a few more times until you get the feel of how it works. When done experimenting, leave the windows displayed.

6. Click the *Stop* button  to freeze the action.

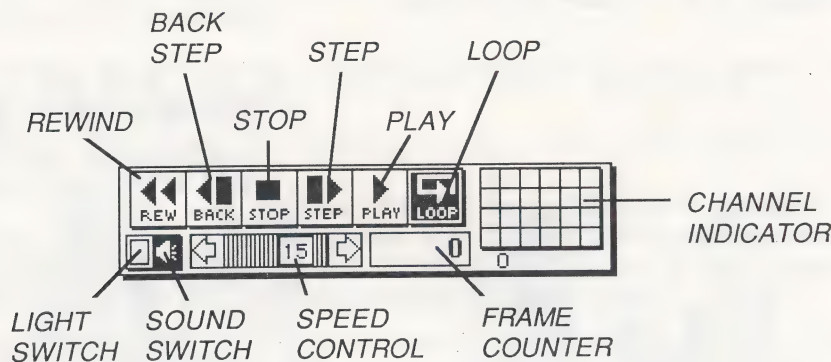
Learning the Panel

Now you will get an opportunity to become familiar with the Panel that controls the movie.

7. Click *Rewind* . Then click *Step*  several times to step forward one frame at a time.

8. Press *Back Step*  several times to step back one frame at a time.

Notice that the animation is made up of discrete images, each one slightly different from the previous one. A tiny bit of sound plays back with each step. Also note that the Frame Counter indicates which frame is being displayed.



9. Press *Play*. While the movie is playing, turn the *Sound Switch* off and on several times to see how it works. When sound is turned on, the icon is:



Leave the sound *on* after experimenting.

Note: If the volume is too loud or too soft, open the Control Panel at the Apple (⌘) menu. Adjust the volume there.

10. Turn the *Light Switch* off and on several times. When lights are turned on, the icon is:  Leave the lights *on* after experimenting.

Re-Creating "The City"

Next we will re-create the movie we just saw.

11. Choose **Burn Scene** from the Edit menu. (Don't choose New!) You will see a dialog box explaining that Burn Scene will erase the Score (the animation information) but leave the castmembers intact. Click OK to continue.

Note: If you get stuck at any point in this tutorial where you cannot continue, and you want to try again, choose **Burn Scene** and return to this point and start over.

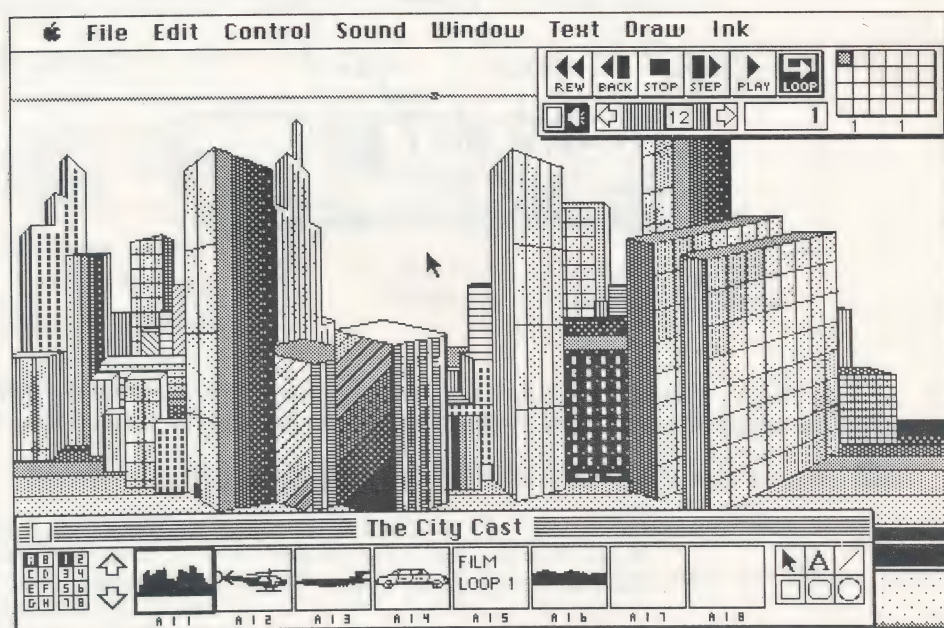
Adding the City

Now let's add the city background.

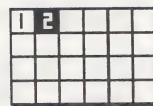
12. Choose **Cast** from the Window menu.

The Cast holds the artwork to be animated.

13. Move the mouse pointer to the landscape in the Cast (position A11). Press and hold the mouse button and drag the landscape out onto the Stage (you will see only a large rectangle). Center the image on the Stage and release the button.



Flying the Helicopter



The Channel Indicator:

VideoWorks is something like a 24 track tape recorder. You can record simultaneous animation into any of the 24 animation tracks. In the Panel is a Channel Indicator which is like "status lights" for each of the channels. It tells which channels are selected for editing or are being recorded into. A number there indicates artwork is assigned to the channel.

When we go to do Real-Time recording, VideoWorks will automatically assign a new channel to the animation we will create by the Real-Time recording. You can actually see this happening:

14. Hold down the Option and Command keys simultaneously.

You should see the Channel Indicator for channel 2 blinking on and off. This is VideoWorks telling us which channel we are about to record into. (There are ways to override the choice that VideoWorks made for us, see "How To Animate" for more details).

15. In the Cast window, select the helicopter (position A12) by clicking on it. (Do *not* drag it onto the Stage.)

Next we will add the helicopter using the Real-Time Recording technique. This technique records live-action, exactly as it takes place.

16. Move the mouse pointer to the upper left edge of Stage where you will start moving the helicopter.

We suggest you read all of this next step before doing it.

17. Holding the *Option* and *Command* keys down, click and drag the mouse (the helicopter will instantly appear) and fly the helicopter around. Land the helicopter on the roof of the building and let go of the mouse button (as well as the Option and Command keys).

Watch the movie – it will repeat. The movie should now be 10 to 20 seconds long, showing the helicopter flying in from the left and landing on the building. Notice the frame numbers are running in the Panel.

Playing with the Panel

Next we will use some more controls on the Panel.



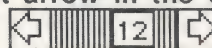
18. Turn the *Loop* button off—it looks like this:

Let the movie run to the end. Notice that now the movie does not repeat.

19. Click *Play* again. Turn *Loop* back on.

20. Slow down the movie by clicking on the left arrow in the *Speed Control*.

Speed it up by clicking on the right arrow.



21. Drag the Scroll Box in the speed control first one way and then the other to change the speed. When done experimenting, set the speed at or near where it was originally (12 or so).

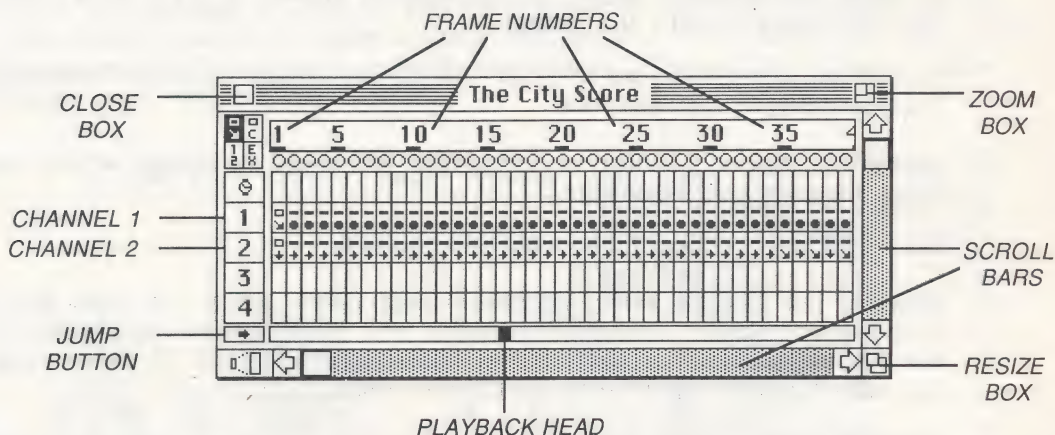
Introducing The Score

22. While the movie is still running, open the Score by choosing *Score* from the Window menu.

At first glance, the Score can appear formidable. Don't worry about all of the little symbols in the Score – we will learn those later. For now, let's just get the larger picture of the Score.

23. Move the Score down and out of the way by moving the pointer to the title bar, holding down the mouse button and dragging downward.

The Score is a window representing the entire movie, from the start (on the left) to the finish (on the right). It is like a movie script, directing the action of the members of the Cast.



Watch the **Playback Head** as it runs by. The Playback Head is very important. It indicates what part of the Score is currently being displayed on Stage.

Channel **1** represents the city you dragged out, notice that the symbols don't change. This is because the city is stationary.

Channel **2** represents the helicopter, notice that the symbols do change. This is because the helicopter is moving.

24. Hit the *Rewind* button



The animation stops, and the Playback Head rests at frame 1.

25. Grab the Playback Head by moving the mouse pointer onto it, holding the mouse button down and moving it to the right and then back to the left.

Notice the animation on Stage moves back and forth with the Playback Head. Also notice that the Frame Counter (in the Panel) changes to indicate the current frame.

The *current frame* is the frame currently displayed on Stage. The Playback Head indicates which frame is the current frame.

26. Click in Playback Head bar at different places.

Notice the animation changes on the Stage according to where you click.

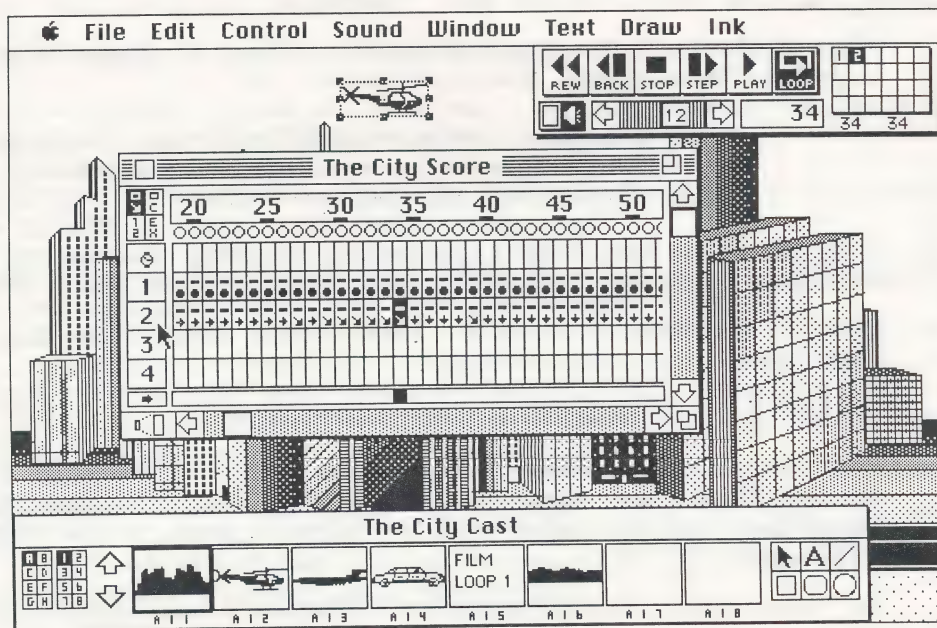
27. Click the arrow in the horizontal Scroll Bar. This scrolls the Score without affecting the animation on Stage. Scroll a long distance, so that the Playback Head is no longer visible.

28. Click on the Jump button . This causes the Score to jump, or scroll instantly, to where the Playback Head is located.

The Jump button is a great shortcut for finding the current frame.

Let's see how the Score and Stage are intimately related.

29. Click on the number "2" at the left of channel number 2 as shown and notice that the helicopter is selected on the Stage. Click elsewhere in the Score to de-select the helicopter.



30. Now move the mouse pointer to the Stage and click on the helicopter—notice the Score indicates that channel 2 is highlighted.

Thus, when you select cells in the Score, the corresponding artwork gets selected on the Stage, and vice-versa.

Adding the Plane

Next we will add the plane using Real-Time Recording.

31. Close the **Score** window. (It'll just be in our way).
32. Click **Rewind** and **Back Step** in the Panel.

This positions us at the *last* frame in the movie.

33. Holding down the **Option** and **Command** keys, notice that the third Channel Indicator is flashing in the Panel. Release the keys.

This is the channel that we will be Real-Time recording into.

34. Select the plane (castmember A13) in the Cast by clicking on it.

The dark box appears around the plane in the cast to show its selected.

35. Move the mouse pointer to the right end of the Stage where you want the plane to start flying.
36. Holding down the **Option** and **Command** keys, click and drag the mouse to fly the plane across the Stage.
37. Let go of the mouse button as soon as the plane reaches the other side.

Removing Extra Frames of the Plane

Watch the plane—if it stops when it reaches the left edge of the Stage, this means you held the mouse button down too long. However, this is easy to fix.

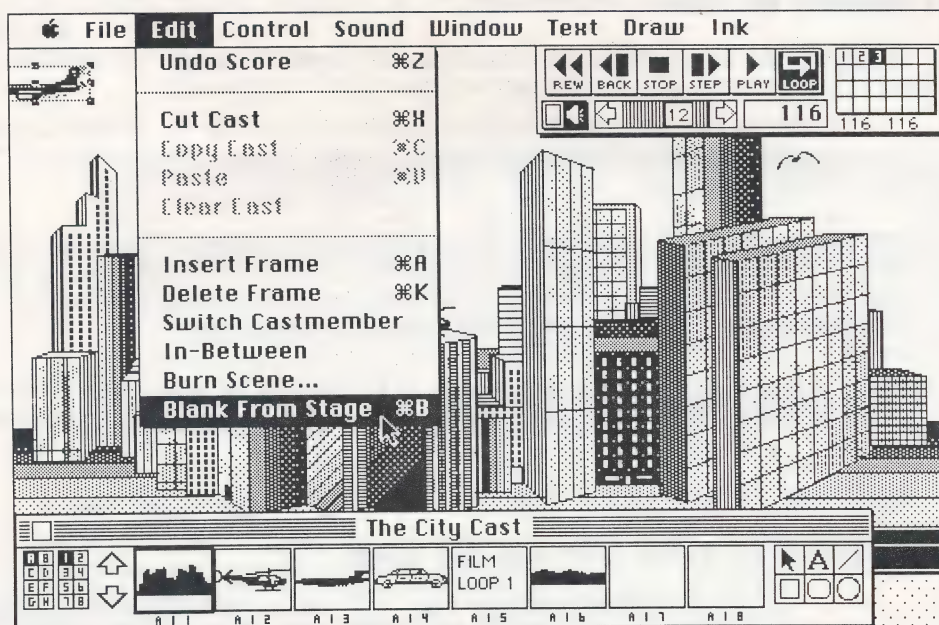
Note: If the plane doesn't stand still at the left edge of the Stage, just pretend that it does stand still a few frames before it reaches the edge, and you can still practice the techniques discussed here.

38. **Play** the movie and **Stop** it just before the plane reaches the left edge of the Stage. Advance the movie using **Step** until the plane stops moving.
39. Click on the plane to select it. Then choose **Blank From Stage** from the Edit menu.

This removes the one selected frame of the plane from the Stage.

40. Click **Step** again to advance to the next frame. If the plane appears again choose **Blank From Stage** again. Continue using **Step** and **Blank From Stage** over and over again until the plane is gone, or you wrap around to frame one.

Now when you play the movie, the plane should disappear as soon as it reaches the left edge of the Stage.



Adding the Car: In-Betweening

41. Click *Rewind* in the Panel.
42. Select channel 4 in the Channel Indicator.

We are adding another channel to this multi-track animation; so to avoid recording over any of our existing animation, we selected a new channel to record into.

43. Drag the car (castmember A14) out of the Cast window to the left edge of the screen, in front of the black street.

Unlike the previous times when we did Real-Time Recording, we are now affecting only a single frame of the animation (frame 1) when we drag the castmember onto the Stage.

Notice the white box around the car. The simplest way for VideoWorks to put something on the Stage is with a white box around it (this is called "Copy ink"). It takes less memory and runs faster. However, it doesn't look right in all cases. To correct this we will switch to using **Matte ink**. (Inks affect the way castmembers look on the Stage).

44. First select *Blank From Stage* from the Edit menu to remove the car.

Let's drag the car out again, this time using **Matte ink** which will display our car with the edges outlined, instead of surrounding it with a white rectangle.

45. Select *Matte* from the Ink menu. Note that **Matte** now has a check mark next to it.

We were using **Copy ink** beforehand, which was responsible for the white rectangle.

46. Now drag the car out from the Cast again and place it on the street at the left end of the Stage.

47. Position the Score as follows:

Open the Score. Move the Score near the top of the Stage (but not covering the Panel) by dragging it by its title bar.

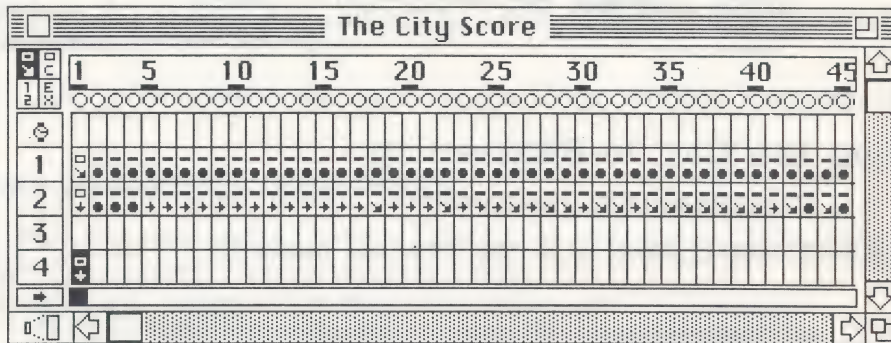
Adjust its size so it is as wide as possible by moving the pointer to the re-size box, pressing the mouse button and dragging the Score wider. Make sure frame 40, and channel 4 are visible.

The Score works like a spreadsheet, but for animation. Each *cell* of the Score corresponds to one of up to 24 pictures on the Stage in a single Frame. We can select any one, or more than one of these cells in the Score. We can then cut, copy, or paste the cells or do many other powerful editing tricks to enable us to edit the animation in an easy fashion.

We refer to cells by their frame and channel. Each cell is at the intersection of a certain frame and channel. To select a certain cell, just drag across it from left to right in the Score.

48. Select the cell at frame 1 of channel 4 by dragging across it.

49. Select *Copy Score* from the Edit menu.



50. Move the Playback Head to frame 40 by clicking the mouse in the Playback Head area below frame 40.

Notice that the car is no longer on the Stage.

To select where you want to paste in the Score, you should click on the left hand edge of the cell. You should then see a *flashing insertion point*.

51. Click the mouse on the left hand edge of the cell at channel 4 of Frame 40.

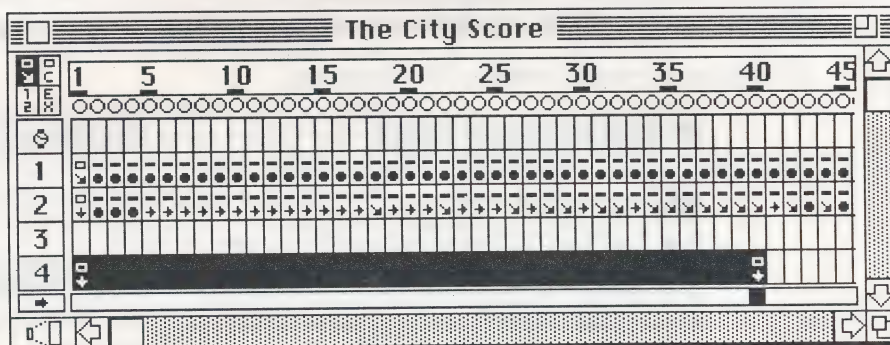
52. Select *Paste Score* from the Edit menu.

Now the car has appeared in the same position as before! Although it *looks* the same, it is really separated in time by 40 frames from the previous picture we saw.

53. Holding down the *Shift key* (which constrains our motion to a straight line) drag the car from the left to the right side of the Stage.

54. In the *Score*, select channel 4, from Frames 1 to 40, by dragging the mouse

from: the *left* hand edge of the cell at channel 4 of Frame 1
to: the *right* hand edge of the cell at channel 4 of Frame 40



We now have a span of space and time selected in the *Score*. We can fill in this span with intermediate frames of animation with one simple, yet powerful VideoWorks command.

55. Choose *In-Between* from the *Edit* menu.

56. Click *Rewind* and *Play* in the *Panel*.

You should now see the car moving smoothly across the road.

Adding a Film Loop of a Bird

57. Close the *Score*.
58. Click *Rewind* and *Play* in the *Panel*. *Stop* anywhere in the middle of the movie.
59. Select *Film Loop 1* in the *Cast* window by clicking on it.
60. Move the pointer onto the left edge of the *Stage*, press and hold *Command-Option*, hold the mouse button down and fly the bird around the *Stage*.

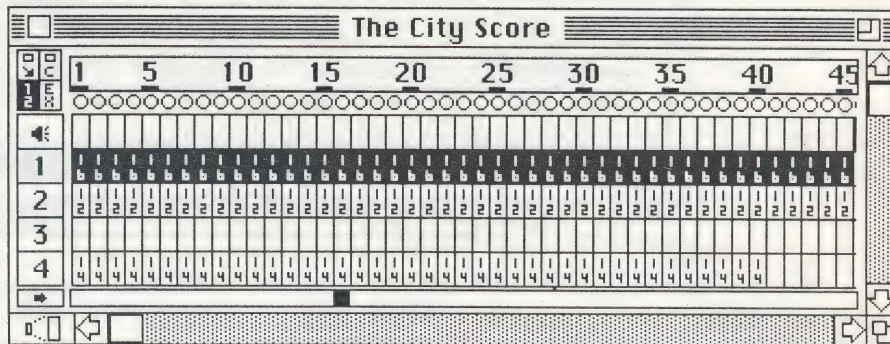
Notice how its wings flap, even when you hold the bird still. This film loop was originally created in the *Score*, then pasted into the cast. How to create film loops is discussed in the "How To Animate" section of this manual.

Switch Backgrounds

Now we will demonstrate how easy it is to change the feeling of an animation merely by changing its background.

61. **Open the Score.** To select all of channel 1 (the background channel) simply double click on the number 1 at the left hand edge of channel 1.

All of channel 1 should now turn black (selected).



62. Click on the Big Sky background (castmember A16) in the Cast window.

Now with another simple, yet powerful command we will change the background for the entire movie:

63. Choose the **Switch Castmember** command from the Edit menu.
 64. Close the Score window, click **Rewind**, and **Play** in the Panel.

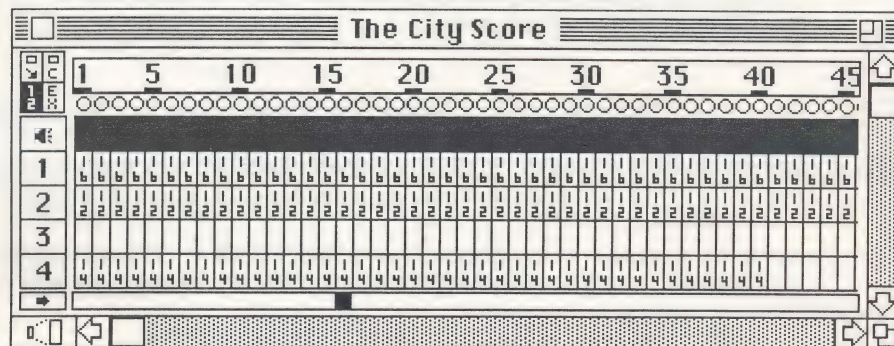
Now the same animation as before appears in front of a mountain scene.

Add Sound

65. **Open the Score.**

The sound channel is the topmost channel in the Score.

66. Select the entire sound channel, by double-clicking on the sound channel icon on the left hand edge of the sound channel.



- 67. Select a sound from the Sound menu: pull the mouse down to Old Music, pause there, when the submenu pops up to the right, slide your mouse over and choose Bach 1.**

Note: If you have System 3.2 instead of the latest System (4.1) your Sound menu will work differently. You will have to first select the submenu, then the Sound menu will be replaced by an new submenu which will have the sound Bach 1 in it.

- 68. Click *Rewind* and *Play* in the Panel.**

You should now hear the music playing. If not, check the troubleshooting instructions in the Sound Files chapter of the Reference section.

Tutorial #6 - The Frogs

Now that we have gained a working familiarity with some of the VideoWorks features, let's explore some advanced animation techniques. Because VideoWorks contains a powerful animation editor, working through the following examples will help you develop editing skills that will actually save you time and effort.

In this tutorial, we will:

- Cut, Copy and Paste sequences in the Score
- Use the Switch Castmember command
- Chain sequences together
- Add scenery with the In-Between command
- Create and use a Film Loop
- Add sound

Play "The Frogs"

1. Open the VideoWorks document called "**#6-The Frogs**".
2. Select **Stage** from the Window menu to clear the Stage.

This clears the screen of all the other windows, such as the Cast and the Panel, and gives you an uncluttered view of the action.

3. Start the animation by pressing **Command-Q** or by selecting **Play** from the **Control** menu.

Even though you can't see the menu bar, you can still select from the menus by moving the pointer to the top of the screen where the **Control** menu normally appears and clicking to pull it down.

While the animation is playing, let's take a look behind the scenes.

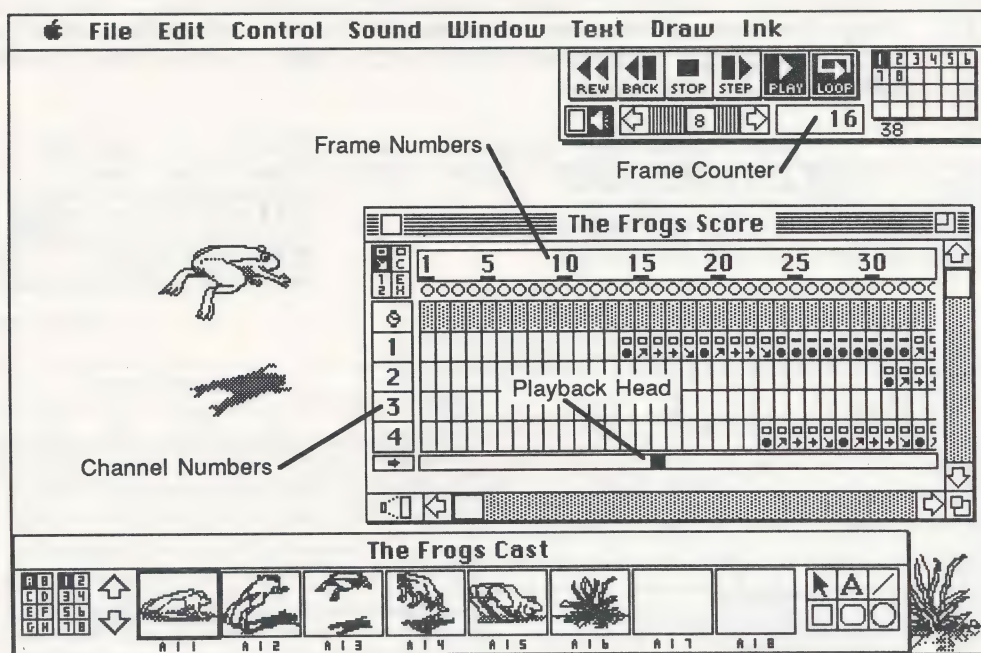
4. First, open the Panel (by selecting **Panel** from the Window menu) and experiment with some of the controls. For example, click the **Stop** button, and note that the action freezes at that point.
5. Click the **Rewind** button and then step through the animation frame by frame, by clicking the **Step** button.

Note as you Step that the animation is made up of discrete images, each one slightly different from the previous one. Note also that as you step through the animation the **Frame Counter** in the Panel indicates where you are in the sequence (see the illustration below for the Frame Counter's location).

6. Open the **Cast** window (from the Window menu).

Note that this entire sequence, is created with only six castmembers. In other words, by using VideoWorks' editing functions, it is possible to achieve this multiple frog effect without having to create additional artwork.

7. Open the Score, and position it on the right of the screen as shown:



The Score holds all the animation information for the movie. Don't worry about what all the symbols mean yet. In the Score, time moves from left to right. Each column represents one moment of time, or *frame*.

Notice the *Playback Head* moving across the bottom of the Score. It indicates which frame is being displayed. Animation occurs by displaying frames rapidly one after the next.

Re-Create "The Frogs"

8. Select *Burn Scene* from the Edit menu. Click OK in the resulting dialog box.

All the information in the Score has now disappeared, but the castmembers are left intact.

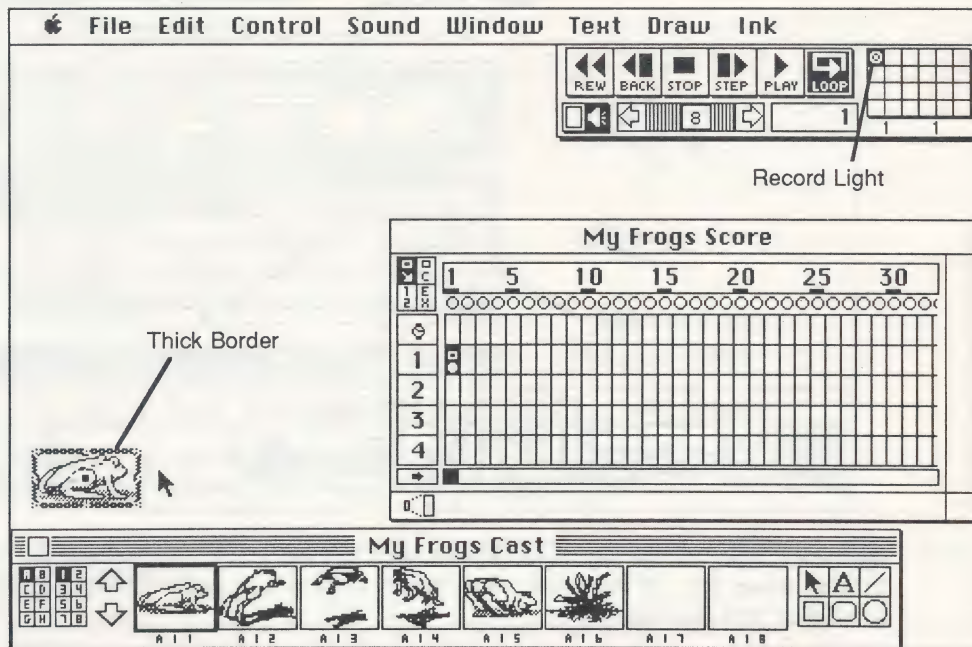
9. Choose *Save As...* from the File menu, and type in a different name (such as "My Frogs").

If you do not Save As now, then if you Save during the course of the tutorial, you will overwrite the original tutorial and it will no longer be available as a reference.

Making the Frog Move

First we will learn how to use the Step command to make the frog move around on the Stage.

10. Drag the first castmember (labeled A11) out of the Cast window and place it on the Stage, somewhere above the Cast window and towards the left hand side of the screen.



First, notice that something has appeared in the Score. channel 1 of frame 1 is now filled in with a symbol, which represents the frog that we just dragged out.

Notice also that there is a thick, dark border around the frog. And there is a little round circle in the Channel Indicator's box for channel 1. We call this the "record light." The thick border and the record light mean the same thing: that we are currently *recording* this castmember into the Score.

Each channel can have its own Record Light, in fact you can have up to 24 Record Lights on at the same time.

11. Turn the Record Light *off*. Holding down the *Option* key, click once on the frog on the Stage.

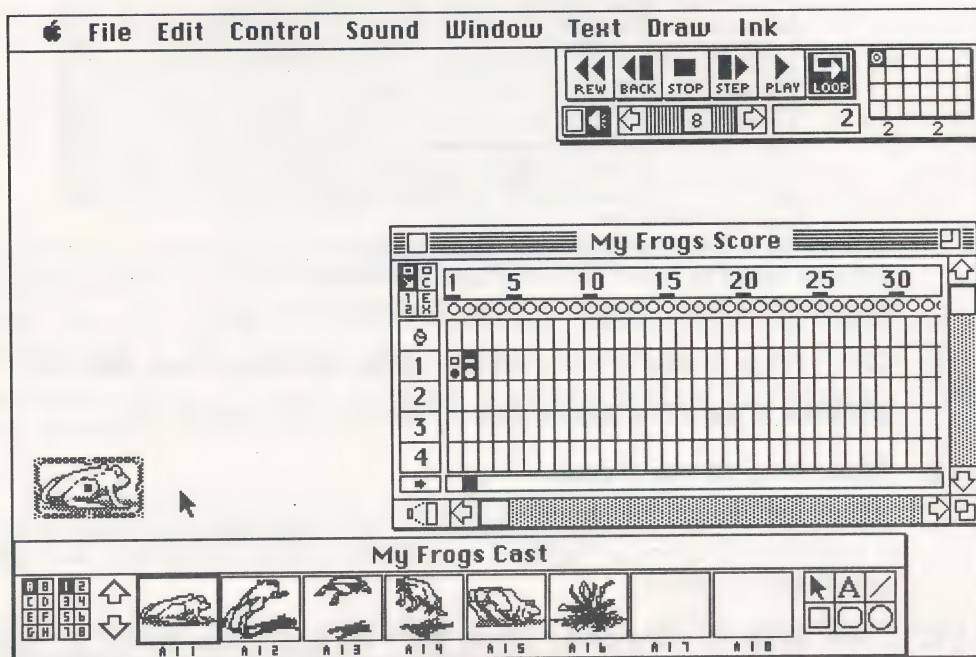
The border of the frog now is light and thin, and the Record Light in the channel 1's Indicator box is replaced by the number 1.

12. Turn the Record Light back *on*. Holding down the *Option* key, click once on the frog on the Stage.

You can toggle the record light on or off at any time. Try it now a few times to get the hang of it, but *leave the record light on when you are done*.

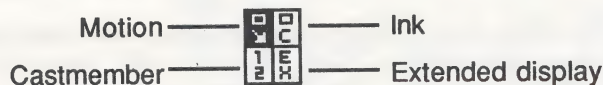
13. Click on the **Step** button in the Panel.

Immediately, another cell of animation is added next to the first one, in frame 2. Also, the Frame Counter reads "2" and the Playback Head has moved (see illustration below). Also the selection in the Score has changed from frame 1 to frame 2.



To continue our animation, we needed some more frames. By giving the Step command we added a frame to our movie. The Step command will *only* record into the Score *when the record light is on*. When the record light is not on, it will simply step to the next frame (as we did in Step 6 above).

The Score can display several different types of information about the animation. To select the information you want to see, click in the appropriate button of the Score Display Indicator:



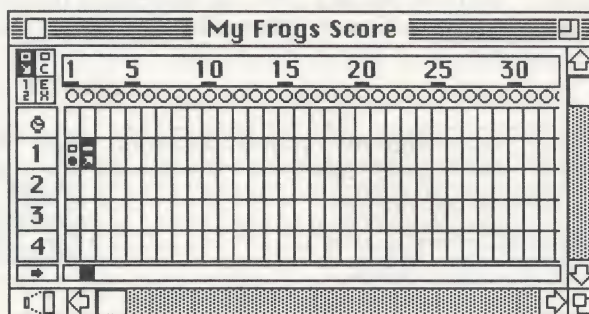
For example, it can show the motion that is happening, or which castmembers are being displayed. Right now we are interested in motion.

14. If the motion display indicator is not selected, click on it now.

Now lets start to make the frog move.

Note: Try to drag the frog from its center, not on its edges. There are "resize handles" on the edges of each frog, which are used to stretch the image. If you drag one of these resize handles by accident, the image will stretch, so you should immediately Undo. If that doesn't work, try reading about the "Normal Size" command in the Reference section.

15. Drag the frog by clicking in its center (not on the edges). Drag it up and to the right a short distance (about a half inch).



Notice that in the Score frame 1 shows a round dot (meaning there is no motion), whereas frame two now shows an arrow (meaning there is motion relative to the previous frame). The direction of the arrow is the direction you dragged the frog (up and right).

16. Click **Step** to add a third frame. Drag the frog down and left.

The arrow in frame three again reflects the direction you moved the frog.

17. Click **Play** in the Panel.

The frog moves in a small circle. Notice that the record light is no longer on in the Panel. This is because clicking any of the Panel buttons besides Step (such as Play, Rewind, Backstep) will turn the record light off.

18. Click **Stop** in the Panel. Click **Step** till you reach frame 3. **Step** again.

When the record light is off, step wraps around to the beginning of the movie when you are at the end. If you want to make the frog move some more with this technique, Step to frame 3, turn on the Record Light, and repeat the Step and drag combination as many times as you want.

Creating the First Frog Jump

19. Select **Burn Scene** from the Edit menu. Click OK in the dialog box.
20. Select **"Matte - Outlines Edge"** from the Ink menu.

This will ensure that when the frogs pass near each other later on, there won't be a white box around each one (which is "Copy - Normal" ink). Instead, Matte ink outlines the edges of an object so that they can be overlayed on top of each other.

21. Drag the first castmember out of the Cast window and place it on the Stage, somewhere above the Cast window and towards the left hand side of the screen.

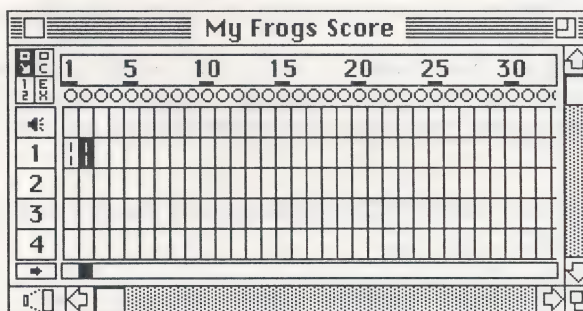
Notice that the Record Light comes on as soon as you drag the frog onto the Stage.

22. Click **Step** in the Panel.

This adds in the second frame.

23. Click on the Castmember Display Indicator **1/2** in the upper left corner of the Score.

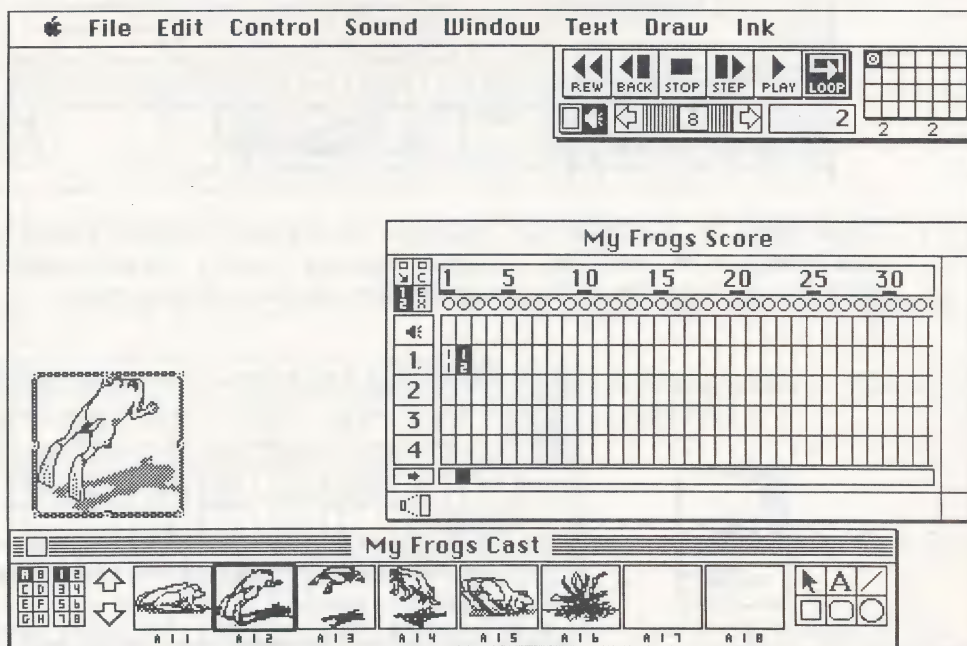
This lets us see the castmember numbers in the Score. So far we have two frames, both have castmember 1-1 in them.



24. Select (but do not drag it out) the *second* castmember by clicking the second box in the Cast window.
25. Switch to this new castmember by selecting *Switch Castmember* from the Edit menu.

Shortcut: There are two other shortcuts for Switch Castmember: typing **Command-E** or double-clicking the second castmember in the Cast window.

The first castmember has been replaced by the second one. And the castmember number in the Score changed from 1-1 to 1-2 for the cell in frame 2.



In general, any editing done to the Score affects the cells that are selected. The reason that the cell in frame 2 switched castmembers instead of the cell in frame 1 is that the frame 2 cell was the selected cell.

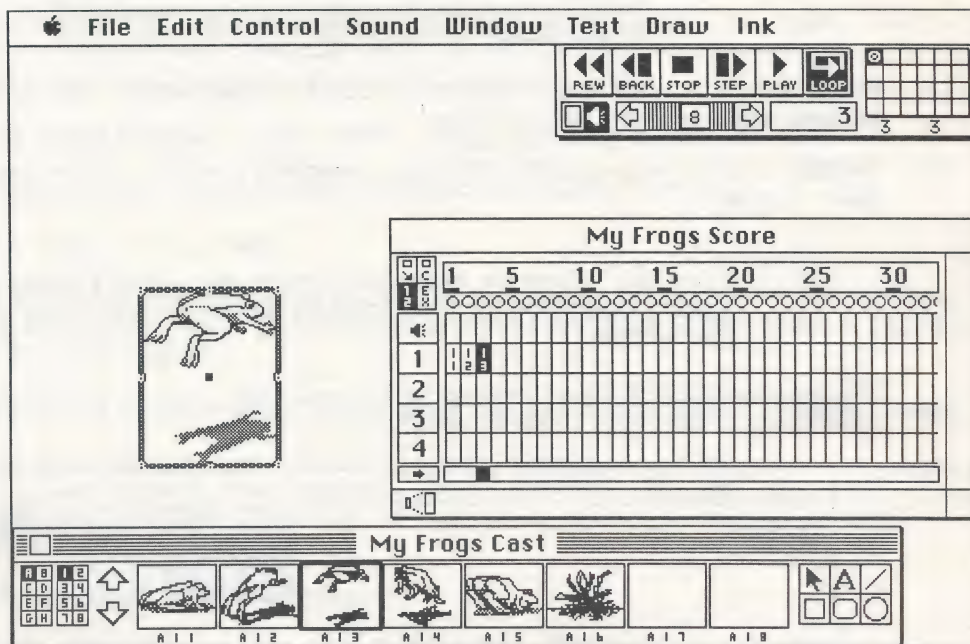
We would like for the frog to jump up, instead of just jumping in place, so we should move this picture of the frog:

26. Drag the frog up and to the right a short distance (about a half inch).

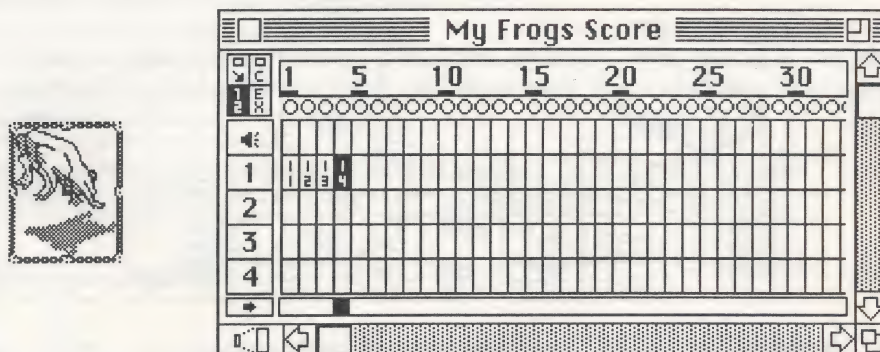
Now we will repeat this procedure for each of the remaining images of the frog:

27. Click Step in the Panel to advance to the next frame; select the *third* castmember in the Cast window; choose *Switch Castmember* from the Edit menu; and drag the castmember up and to the right.

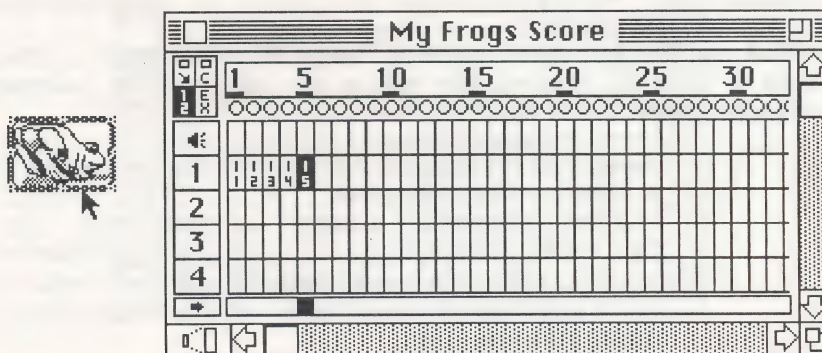
Notice that a new cell was added in the Score on frame 3, and the number of this castmember (1-3) is shown there.



28. Click Step in the Panel to advance to the next frame; select the *fourth* castmember in the Cast window; choose *Switch Castmember* from the Edit menu; and drag the castmember up and to the right.

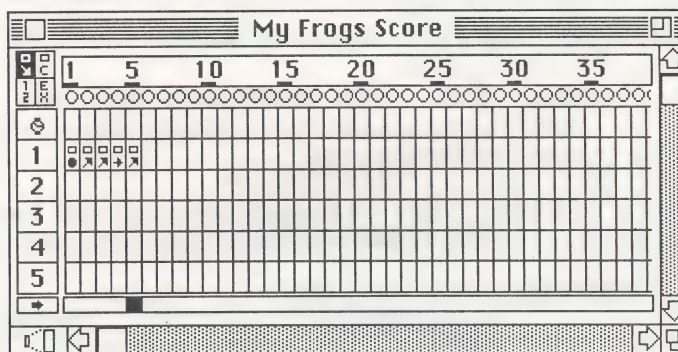


29. Click **Step** in the Panel to advance to the next frame; select the *fifth* castmember in the **Cast** window; choose *Switch Castmember* from the **Edit** menu; and drag the castmember up and to the right.



Notice that after each step of this process, a new cell was added in the **Score**, with the number of the castmember being shown there.

30. Change the **Score** display back to motion display (by clicking on the  button).



Notice that the **Score** shows us that the motion is generally up and to the right, just as we would expect.

31. Click the **Play** button, and watch the frog jump back and forth across the screen.

Congratulations! You have just animated your first Frame-by-Frame sequence. Now we will use the powerful editing capabilities of the **Score** to enhance our animation.

Chaining Several Frog Jumps

We shall now see how to take this small animated sequence and, by using the **Copy** and **Paste** functions, turn it into a plague of Biblical proportions.

32. Select frames 1 through 5 in channel 1 in the **Score** by dragging the mouse pointer across them (start dragging near the left hand edge of frame 1).

Note that we can carry out any of our editing functions even while the animation is still running. If you had stopped the action go ahead and start it up again so you can watch your changes take immediate effect.

33. Select **Copy Score** (from the Edit menu) to copy first five frames.
34. Click on the left hand edge of frame 6 in channel 1 (you should be able to see a flashing vertical bar where you clicked the pointer) and select **Paste Score** from the Edit menu.

Note: You will notice in the Edit menu that the commands Cut, Copy or Paste are followed by either "Score", "Cast", "Graphic" or "Text". This is to reflect which window is currently active -- the Score, the Cast, the Paint Window or the Text Window. It is important when you are using any of those commands, that you realize *which window is active* at the time or you could be unintentionally cutting, copying or pasting the wrong item.

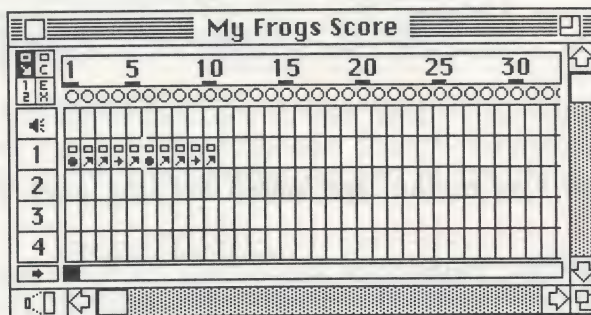
Notice that although the selected sequence has been copied into frames 6-10, nothing seems to have changed: The same old frog is still jumping back and forth across the screen. This is because frames 6-10 are the same as frames 1-5 in *every* respect, including the frog's starting position. But what if we want frames 6-10 to start where frames 1-5 end, so that the frog takes two hops across the screen? We can do this by using *Paste Relative* instead of Paste. Here's how:

35. Select **Undo Score** from the Edit menu to undo our last Paste.

The Score should be back to having just five frames.

Note: If the Undo didn't work, then select frames 6-10 of channel 1 by dragging the mouse pointer across them, and select *Clear Score* from the Edit menu.

36. Click the left hand edge of frame 6 (you should see a blinking vertical line) and select **Paste Relative** from the Edit menu.

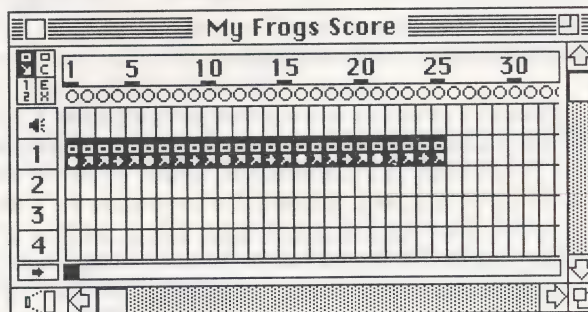


Aha! The frog now takes two hops before starting again.

37. **Paste Relative** the sequence three more times until you have filled the first 25 frames of channel 1 - making sure that:
 you are pasting onto the *end* of the animation each time; and
 you are using **Paste Relative**, not **Paste Score**.

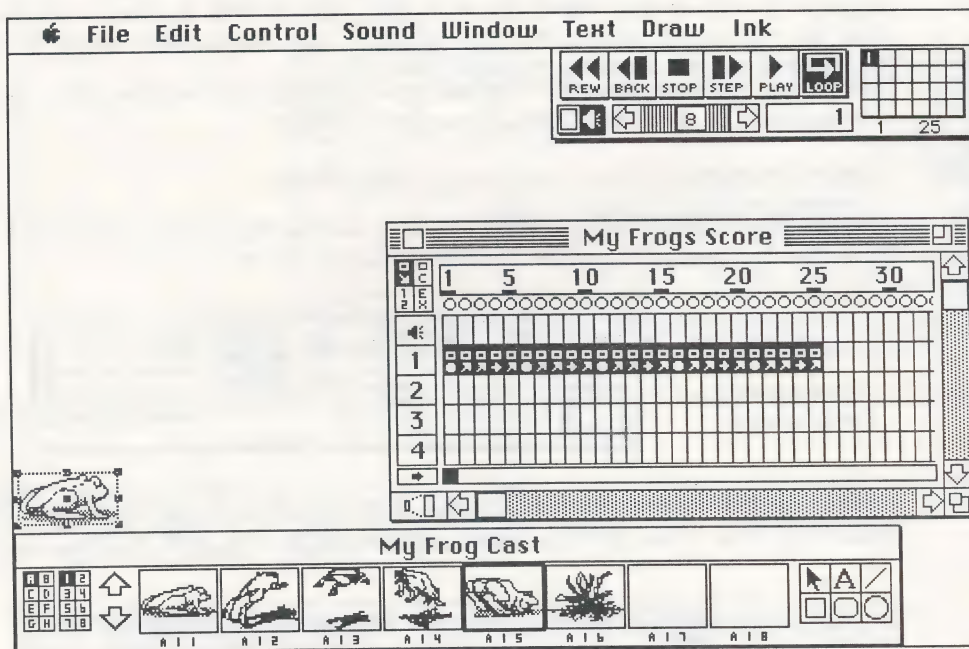
Watch the frog jump all the way across the screen. Next, let's edit the sequence so that the frog starts its journey nearer to the edge of the screen instead of its current starting position. To do this, we will need to stop the action.

38. Click *Rewind* (which both stops the action and rewinds the film to the first frame) and then select the whole sequence of 25 frames by dragging the pointer along channel 1.



39. Click the frog as it sits in its initial position, and then drag the frog to the left edge of the screen, about an inch from the bottom left corner.

Because you have selected all the frames in the Score, you have not only changed the position of the frog in frame 1, but you have changed the position of all the frames by the same amount.



40. Click **Play**.

You will see that the entire sequence has been shifted over. As with all editing of the Score, whatever changes you make are applied to *the entire selection*. Even though we shifted the sequence by dragging the first frog (i.e., the first castmember), it is important to realize that we could have done so by dragging any of the five castmembers the same distance, provided you had selected the entire channel within the Score.

Note: If your frog did not start jumping from the left edge of the Stage and you notice that the frog seems to flash on another area of the screen, you probably did not select all of the frames in the Score. To correct this problem, step through the animation with the step button on the panel. Find the frame or frames where the frog is out of place. Select the frog on the screen and move it to the approximately correct position. Step and Backstep to see if the movement is smooth, make any minor adjustments necessary.

Go Forth and Multiply

Now let's increase the frog population by further copying and pasting.

41. Close the Cast window to make more room on the Stage. It will also be helpful to move the Panel to the left side of the screen - to do so, click in one of the white areas on the edge of the Panel and drag it.

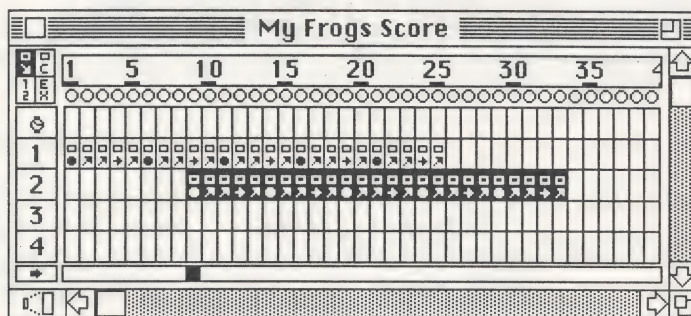
You will also need to adjust the size and position of the Score window from time to time during this section of the tutorial, in order to get at all the frogs.

42. Select frames 1-25 of channel 1, and **Copy**.

You can check to see that the correct frames are selected by looking at the Range Indicator on the Panel (the first number should be 1 and the second should be 25).



43. Click the left hand edge of frame 9 in channel 2, so that you have a flashing line, and select **Paste Score** from the Edit menu.



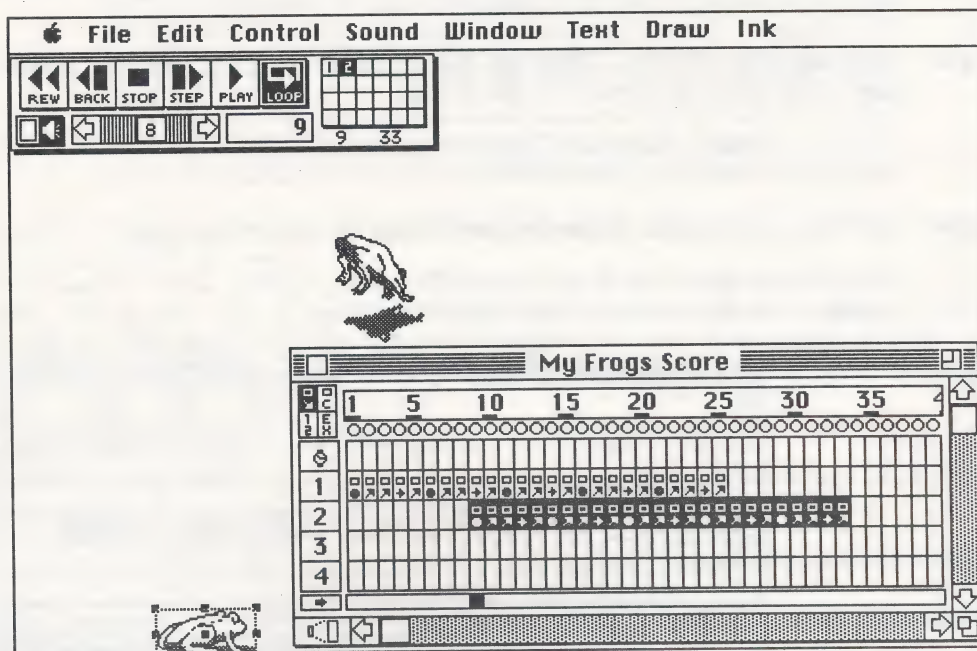
Normally frogs don't move in single file like this, so we will need to move one of them onto a slightly different path.

44. Click **Rewind**, and **Step** till the Frame Counter shows you are at frame 9. Select frames 9-33 of channel 2.

The resting picture of the second frog should now be selected on the Stage (if not, make sure your Playback Head is at frame 9).

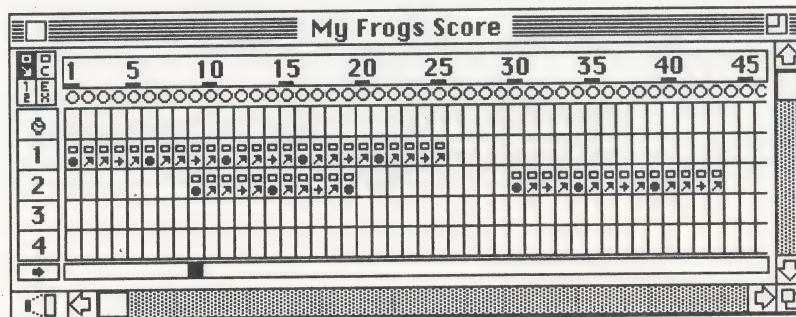
45. Drag the selected frog on the Stage so that it is on the bottom of the screen, about an inch from the left corner.

Since we had selected all the frames of this animation, the drag affected all those frames, instead of just the one that we see on the Stage. Now when you hit Play, the frogs should jump more naturally.



Let's add still more realism into the animation by making the second frog rest a little between hops.

46. Select frames 20-33 of channel 2. Select **Cut Score** from the Edit menu. Click on the left hand edge of frame 30 of channel 2 (you should see a blinking white line). Select **Paste Score**.



If you play the animation now, you will see the second frog disappear between frames 20 to 29. There are several techniques you can use to fill a gap like this. One is using In-Between (which we will discuss later), another is to copy and paste a single cell 10 times to fill the gap.

Instead, of those techniques for filling in the gap, we will use the Record Light and the Step command. Remember that Step *added* frames at the *end* of the movie earlier in this tutorial. In the *middle* of a movie, Step *modifies* those channels that have the Record Light on.

47. Click **Rewind**, and **Step** till you are at frame 19 (watch the Frame Counter or Playback Head to see where you are).

Note: A shortcut for this is to click in the Playback Head area of the Score below frame 19 to move the Playback Head directly.

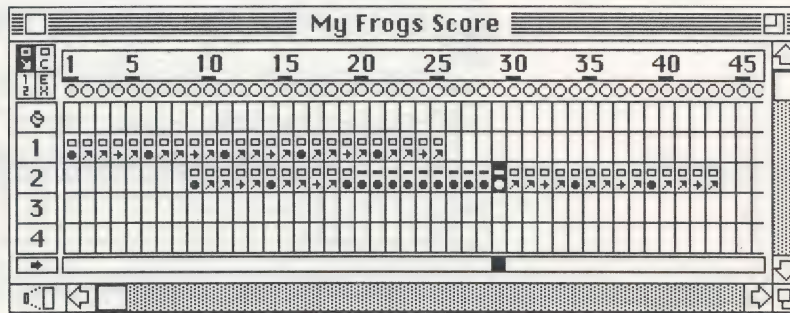
The frog you will be looking for next is probably in the very middle of the screen, so you should move or resize your Score till you see it.

48. Turn on the Record Light for the second frog by holding down the **Option** key and clicking once on the frog.

Note: If you can't find the frog, try closing the Score window temporarily. It may be right underneath it.

49. Now you can click **Step** several times to fill in the gap.

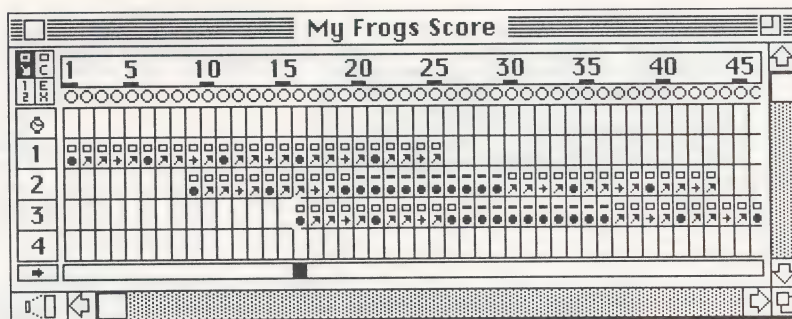
Notice that the gap in the Score is being filled in as you Step. *Don't Step too far* or you will start recording over the existing animation after frame 30.



You can also use this technique of Stepping with the Record Light on in the middle of an animation to change the motion of a sprite. When you are Stepping with the Record Light on, you are recording *only those channels that have the Record Light on*. Any channels without the Record Light remain as they were.

Now we can do some mass multiplication.

50. Select frames 9 to 43 of channel 2 (all the animation in that channel). Select *Copy Score* from the Edit menu. Click on the left hand edge of frame 16 of channel 3 (you should see a blinking white line). Select *Paste Score* from the Edit menu..



If you play the movie now, you will see 3 frogs jumping across the screen. But again, two of the frogs are jumping in lock-step.

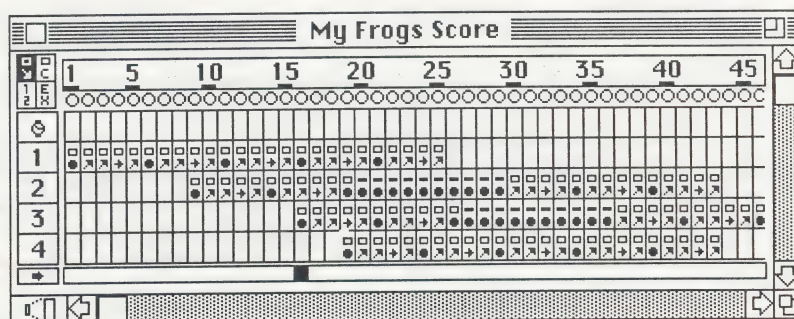
51. Select all of channel 3 by double-clicking on the channel number ("3") at the left of the Score (or by dragging across all the animation in that channel). *Step* to frame 16 (or move the Playback Head there directly).

You should now see the third frog selected and resting on the bottom of the screen.

52. Drag this frog to the left edge of the Stage, about an inch up from the bottom.

We will repeat this procedure two more times, to add two more frogs jumping across the Stage.

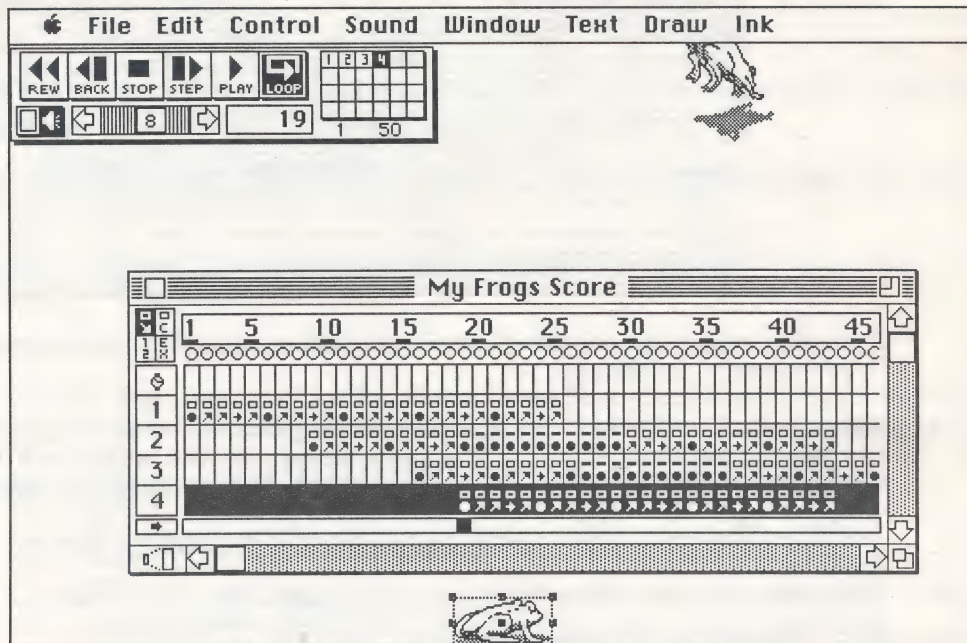
53. Select channel 1 from frame 1 to 25 (all the animation in that channel). Select *Copy Score* from the Edit menu. Click on the left hand edge of frame 19 in channel 4 (you should see a blinking white line). Select *Paste Score* from the Edit menu.



54. Select all of channel 4 by double-clicking on the channel number ("4") at the left of the Score (or by dragging across all the animation in that channel). *Step* to frame 19 (or move the Playback Head there directly).

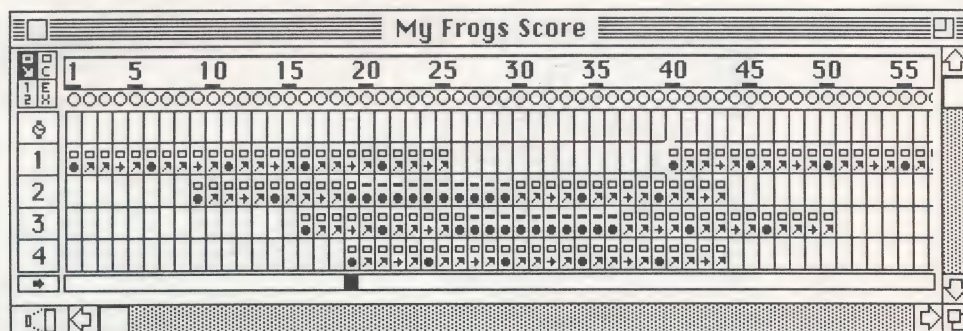
You should now see the fourth frog selected and resting on the left edge of the screen.

55. Drag this frog to the center of the bottom edge of the Stage.



Now we will copy this frog we just pasted.

56. Select channel 4 from frame 19 to 43 (all the animation in that channel). Select Copy from the Edit menu. Click on the left hand edge of frame 40 of channel 1. Select Paste from the Edit menu.



If you Play the movie now, you will see a plague of frogs. You may have to temporarily close some windows (like the Score) to see all the frogs.

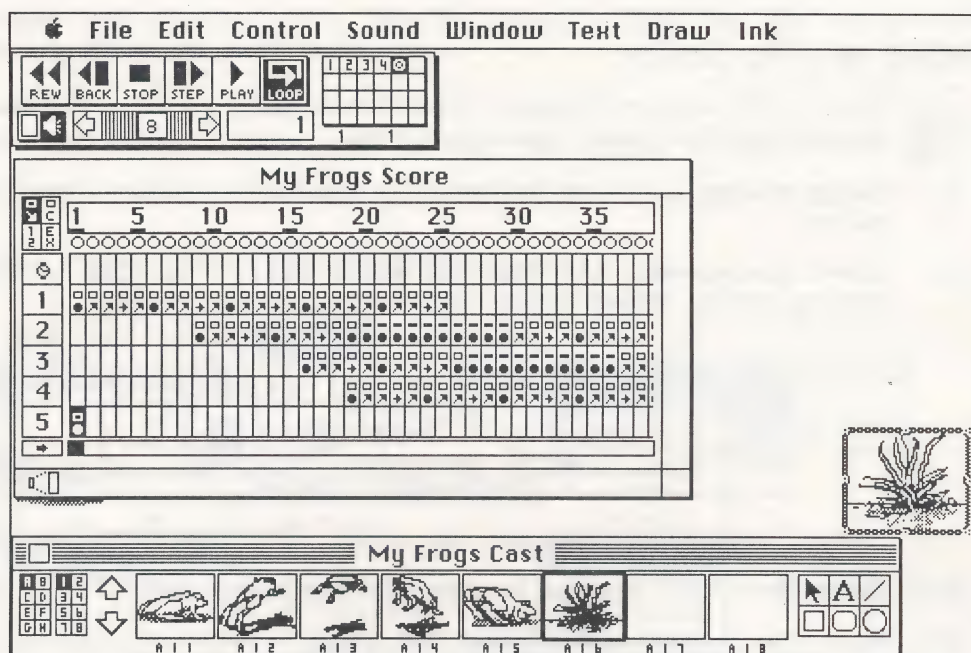
Add Some Scenery

Let's bring some scenery onto the Stage.

57. Click **Rewind** and select the first frame of the channel 5 either by clicking that cell in the **Score** or by clicking the channel 5 box (the fifth box) in the **Channel Indicator** in the Panel.

Whichever method you choose, you should see a blackening of the channel 5 box in the Channel Indicator.

58. Open the **Cast** window, select the sixth castmember (the small bush), and drag it out onto the **Stage**, placing it in the bottom right hand corner of the screen.



We are now faced with the same situation as when we were filling in the gap earlier in this tutorial. We want to extend a stationary object on the screen through time. As before we could:

- Copy and Paste 64 times
- Step 64 times with the Record Light on; or
- Use the In-Between command a single time.

Hmmm... Sounds like In-Between might save us a lot of work! Let's try it.

59. Select all of channel 5 by double-clicking on the channel number ("5") on the left of the **Score**.

60. Select *In-Between* from the Edit menu.

The In-Between function allows you to specify the starting and ending positions, and the number of frames, for a castmember's movement across the Stage, and fills in (or "in-between's") the intervening frames. If you leave off an ending position, as we did here, it fills in with the starting position.

You can now Play your animation to make sure it looks correct.

Note: If the bush is blinking on and off, you probably did not In-Between for the entire length of the movie. To remedy this, Cut out all the frames of the bush except the first, and try again.

Creating a Film Loop

Here we will learn a new technique for Real-Time recording, that will let us animate a *sequence* of images in real-time, instead of just a single image.

61. Select frames 1 to 5 of channel 1 in the Score. Select *Copy* from the Edit menu.
62. Select castmember A17 (the first empty box) in the Cast window by clicking on it. Select *Paste Score* from the Edit menu.



63. Select *Burn Scene* from the Edit menu. Click OK in the dialog.
64. Close the Score window to give yourself more room.
65. Move the mouse pointer over the Stage.
66. Holding down the *Option* and *Command* keys, click and drag the mouse on the Stage.

The frog jumps as you move your mouse. When you let go, the animation repeats (if you have Loop On in the Panel).

67. Repeat the previous step as many more times as you'd like, to add more frogs to the movie.

Note that when you hold down the Option and Command keys, the next available channel starts blinking in the Channel Indicator of the Panel. This is showing you which channel you will be Real-Time Recording into.

This technique lets you easily add many frogs. Suppose, however, you want to record *over* an existing frog. To see how to do this, we will first start over and record a single channel of animation. Then we will record over it.

68. Choose *Burn Scene* from the Edit menu. Holding down the *Option* and *Command* keys, press and drag in the Stage to add a single channel of Real-Time animation.
69. Click *Rewind* to stop the animation and return to frame 1.

70. Holding down the *Option and Command* keys, click on the Channel Indicator for channel 1 in the Panel (it starts flashing). *Keep holding down* the Option and Command keys, and you can Real-Time record over the existing animation.

When you let up on the mouse, you should see only one frog moving.

If you want to create your own film loops, you should also learn about how to use the Registration Point tool in the Paint window. See the "How To Animate" section for more details.

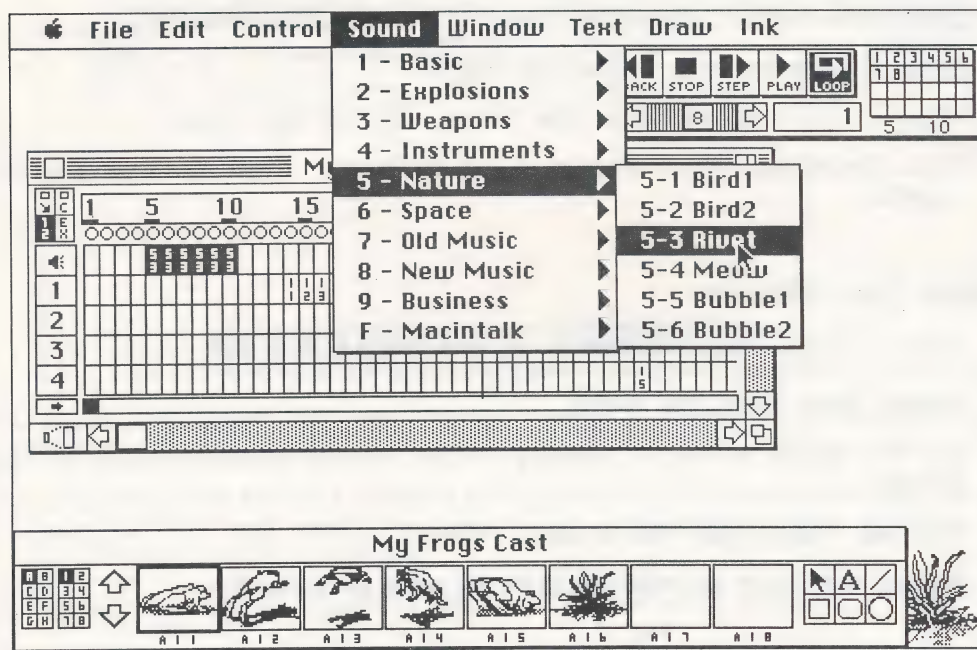
Adding Sound

71. Reopen the existing movie "#6-The Frogs". Click the "No" button when you are asked to save changes.

72. Open the Score window, click on the castmember display button 

This will let you see the numbers associated with the sounds in the sound channel.

73. Select frames 5 to 10 of the Score.



74. Select a sound such as "Rivet" from the Nature submenu.

Note: If you are using System 3.2 instead of the latest System (4.1) you will need to first select Nature, then (from the same menu) Rivet.

75. Rewind, click play.

You should hear the sound as the Playback Head passes over frame 5. You can select other parts of the sound channel where you would like to hear sounds and add them in.

Tutorial #7 - Point-of-Purchase Display

This is a more advanced tutorial. To fully understand it you will want to first at least skim through the sections in "How To Animate" listed below to find out where the explanations are for the things you will be doing in this tutorial.

- Editing an Animation
- Adding QuickDraw Shapes
- Adding Text

In this tutorial we will:

- Move artwork smoothly across the screen (using the In-Between command)
- Use Macintalk to make the Macintosh speak
- Use QuickDraw shapes
- Make a QuickDraw shape grow smoothly
- Use Art Grabber+ to import a graphic
- Use a Text Box

Watch the Presentation

1. *Open* the VideoWorks document "**#7-Point-of-Purchase**".
2. Type **Command-1** to reveal the Stage.
3. Type **Command-Q** to start the movie. Watch the movie.
4. Type **Command-1** to bring back the windows. Click **Stop** to stop the movie.

Re-Create the Movie

First we will make text scroll from the top of the Stage to the bottom.

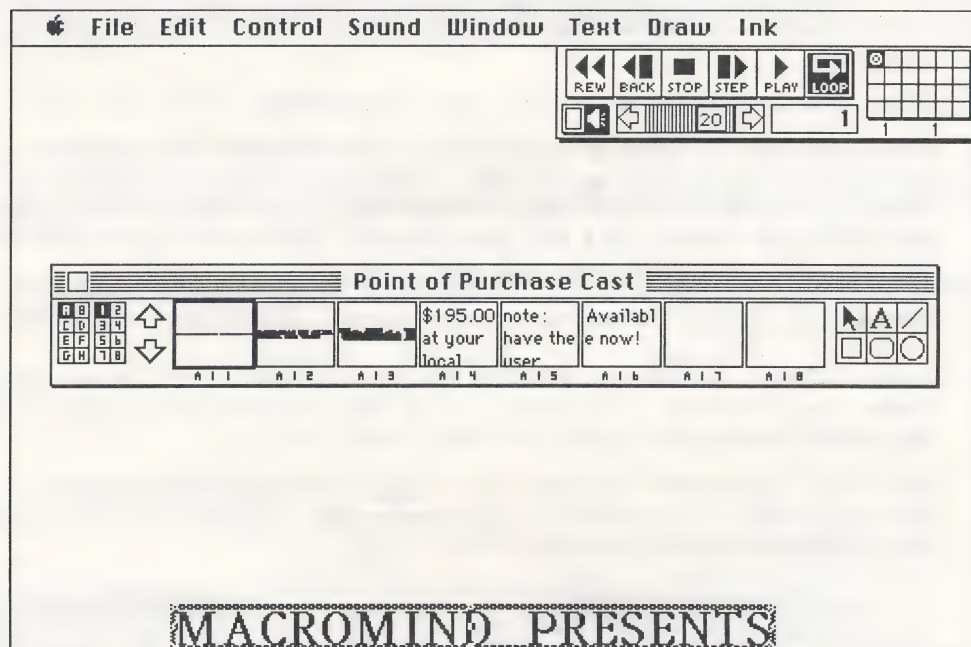
5. Select **New** from File menu.
6. Set the speed to 20 by clicking on the Speed Control arrows in the Panel.
7. Choose **Paint** from the Window menu.
8. Resize the Paint window so it is as wide as possible.
9. Click on New Easel .
10. Drag open the easel by pressing and holding the mouse button on its handle (lower right corner) and moving down and to the right
11. Click on the Text tool , and click inside the easel.
12. At the Text menu, choose **New York** style, **Bold** style, **24 pt** size.

Note: If you are using a system prior to System 4.1, your screen will show the Font and Style menus in place of the Text menu. In that case, choose New York from the Font menu and choose bold and 24 pt from the Style menu.

13. Type "MACROMIND PRESENTS" or substitute your own name or the name of your company.

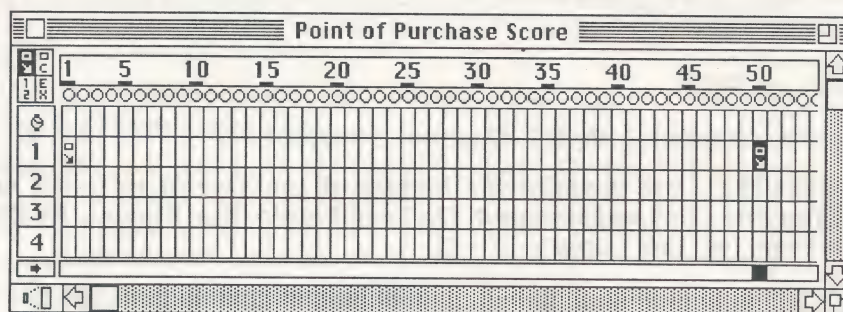
We could have typed the text into the Text window, but then it would move across the Stage more slowly.

14. Close Paint.
15. Click channel 1 in the Channel Indicator.
16. Move the Cast towards the middle of the screen to get it out of the way. Drag the first castmember (A11) out onto the Stage. Position it near the bottom of the screen.



17. Open the Score from the Window menu, position it so that you can see frames 1 through 50.
18. Channel 1 of frame 1 should be selected (if not, click on the left hand edge of that cell, and drag over to its right hand edge). Choose *Copy Score* from the Edit menu.
19. Select the cell at frame 50, channel 1 so that it is black.
20. Choose *Paste Score* from the Edit menu.

21. Click the Playback Head bar at frame 50 so that the Playback Head moves to frame 50.

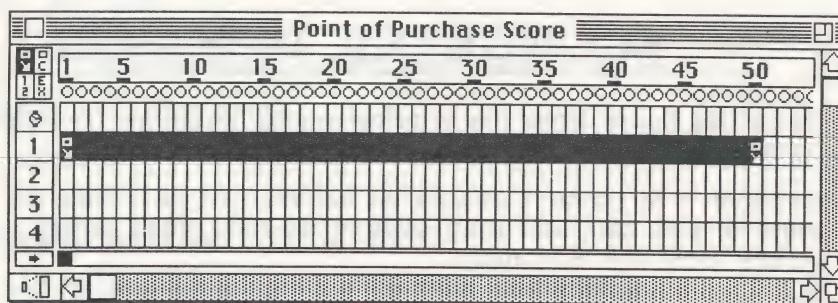


22. Close the Cast window to get it out of our way.
23. Move the mouse pointer to the text "MACROMIND PRESENTS" at the bottom of your screen so the tip of the pointer is somewhere on that text. Press and hold the Shift key. Press the mouse button and (while holding the Shift key down) drag the text straight up to the top of the Stage. Release the mouse button and Shift key.

The Shift key constrains the movement of the object to a straight line.

24. Select frames 1 to 50 by placing the pointer at the left hand edge of frame 1 of channel 1, pressing the mouse button and holding it down as you drag the pointer all the way to frame 50.

There is no need to make the Score window bigger, the Score automatically scrolls to let you select an area that is larger than what is currently visible. The Score should now look like the following figure, with all frames black, from 1 to 50.



25. Choose *In-Between* from the Edit menu.

This fills in the intervening frames.

26. Make sure *Loop* is turned on.
27. Press *Command-1* and then *Command-Q*.

Watch the text scroll down the screen. Notice that it Repeats. (The text would be less jerky if you had recorded more frames, say from frame 1 to 100.)

28. Press *Command-1* again to bring all of the windows back and then click Stop in the Panel.

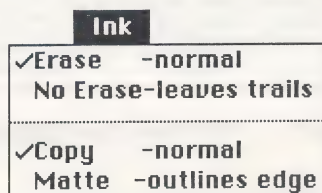
Add Your Product Name

Next we will produce text scrolling in from the right to the center of the Stage.

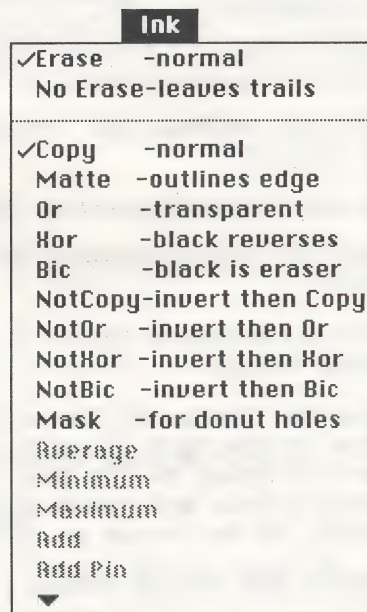
29. Open Paint.
30. Click on the New Easel.
31. Re-size the box like before, so that it is as wide as possible.
32. Make sure you have New York 24 bold selected in the Text menu.
33. Type: "Animation for office, school and home" (on two lines - type a *Return* before "school") or substitute your own product description instead.
34. Close the Paint window.
35. Open the Cast by selecting Cast from the Window menu.

We will be using one of the special Inks, which are only available with the long VideoWorks menus.

36. Pull down the Ink menu and look at it. Which of the following kinds of ink menu do you have?



Short Ink Menu



Long Ink Menu

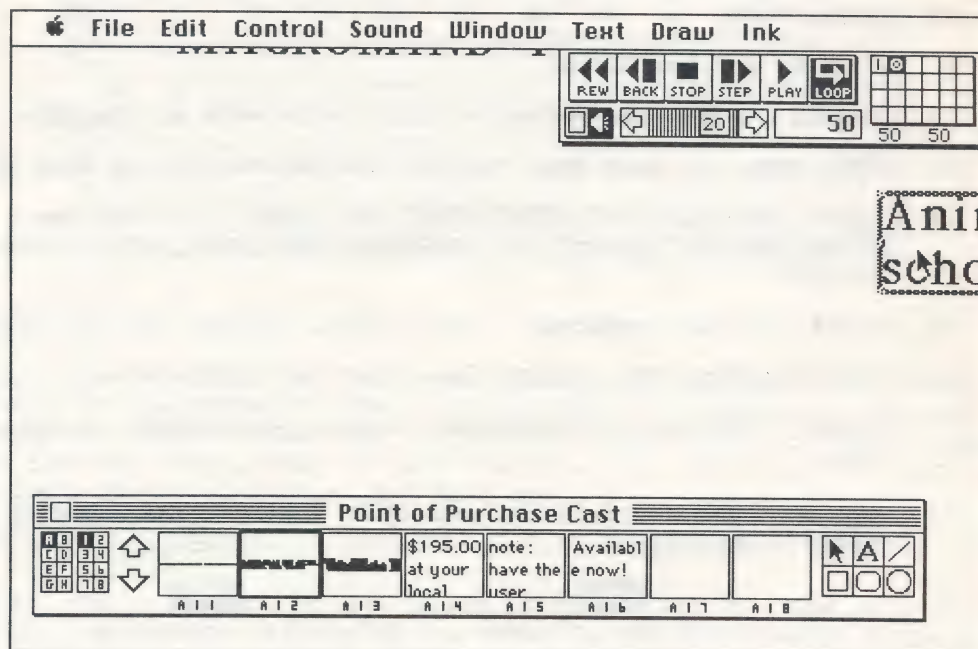
If you have the Long Ink menu, then go to the next step of the tutorial.

If you have the Short Ink menu, then select *Long Menus* from the Control menu.



37. Click channel 2 at the Channel Indicator . From the Ink menu, select "*Or - transparent*".

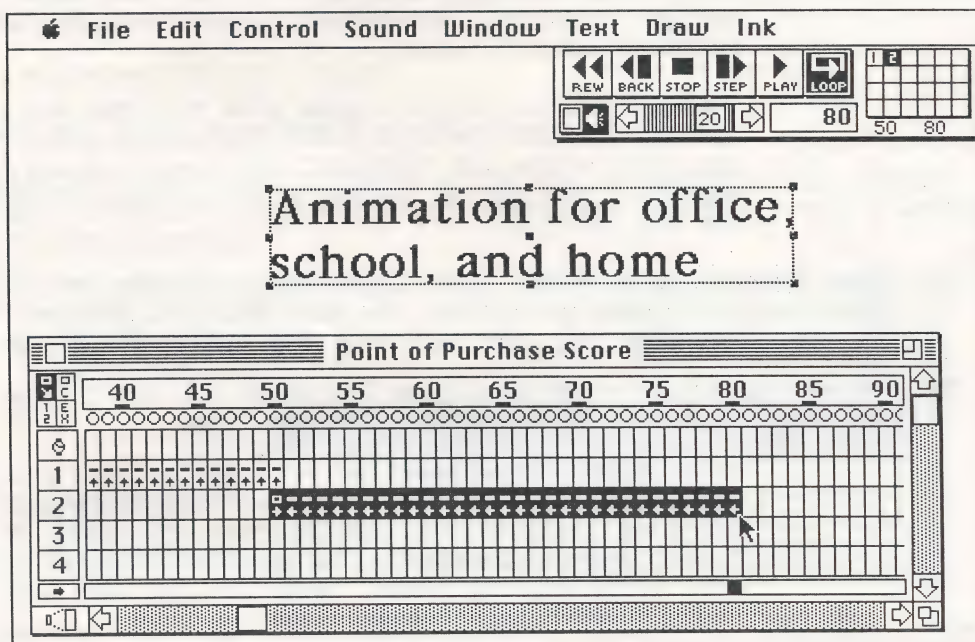
38. **Rewind. Back Step** one frame. This locates the Playback Head at the end (frame 50).
39. Drag the second castmember out of the Cast and onto the right edge of the Stage so that just the first letter or two are visible.



40. If it's not visible, open the Score. Position the Score near the bottom of the screen.
41. Choose **Copy Score** from the Edit menu.
42. Scroll the Score to frame 80 and choose **Paste Score** from the Edit menu.
43. Click the Playback Head bar at frame 80. The Playback Head should jump to this frame.
44. Move the mouse pointer to the text "Animation for office, school, and home" at the right of your screen so the tip of the pointer is somewhere near the center of that text. Press and hold the Shift key. Press the mouse button and (while holding the Shift key down) drag the text straight to the center of the Stage.
45. Release the mouse button (and the Shift key).

46. Select the frames in the Score by placing the pointer just to the left of channel 2 in frame 50, pressing the mouse button and holding it down as you drag the pointer all the way to frame 80.

The Score should now look like the following figure, with all frames black, from 50 to 80.



47. Choose *In-Between* from the Edit menu. This fills in the intervening frames.
48. Press *Command-1* and *Command-Q*. Watch the text .
49. Press *Command-1* again to bring all of the windows back.
50. Click on *Stop* at the Panel.

Make Your Macintosh Speak

Next we will add Macintalk, a speech package developed by Apple Computer.

51. Open the Score if it is not visible now.
52. Scroll to frame 80. Click the Playback Head bar at frame 80.
53. Pull down the Window menu and select *Text*. Scroll down to row A71.
54. Click anywhere in the row of the Text window labeled A71 and type: "Animation for office, school, and home" (or substitute your own message). This is the text that will be spoken by the Macintosh.
55. Close the Text window by clicking in its close box.
56. In the Score, select frame 80 of the sound channel (the top channel). Make it selected black.

57. Pull down the Sound menu and stop at the item named Macintalk. A submenu opens up at the left. Keep holding the mouse button down and move to the first item, Cast #7-1. The Macintalk sound is now added to the score.

Note: If there are no menu items in the Sound menu you have the Sounds file in the wrong place on your disk. See "Sound Files" in the Reference section.

Note: If you are using a system prior to System 4.1, your Sound menu will be different. In this case, pull down the Sound menu and choose the last item "Macintalk." Pull down the Sound menu again—notice it has different commands (this is a submenu). Choose the first item, Cast #7-1.

58. Click *Rewind* at the Panel. Type *Command-1* to clear the Stage. Type *Command-Q* to start the movie. We have displayed the text that is being spoken. Macintalk text does *not* have to be on-screen to be heard.
59. When you are done watching, type *Command 1* to bring back the windows. And click the Stop button in the Panel.

Note: If you hear no sound, first make sure the sound is turned on at the Panel—the loudspeaker should be white on a black background with sound coming out of it. Also check the volume control in the Control Panel desk accessory. If that doesn't work, refer to "Sound Files" in the Reference section. Most likely you don't have the Macintalk file in the right place on your disk.

Add a Gray Background

Next we will add a gray background with a border around the text.

60. Open the Score if it is not visible and scroll to frame 80. Click the Playback Head bar at frame 80 to make the Stage display that frame.
 61. Close the Score by clicking its close box.
 62. Click channel 1 at the Channel Indicator. channel 1 is for the background.
 63. Click the QuickDraw rectangle tool at the right end of the Cast. Notice the pointer changes to a crosshairs with a tiny box attached to it.
- 
64. Move the pointer to just above and to the left of the text "Animation for office, school, and home".
 65. Press the mouse button and hold it down while you draw diagonally across the text – this motion will draw a rectangle around the text. Release the button when the rectangle surrounds the text.

Note: If the rectangle appears over the text, then the text is in a lower numbered channel than the text box. The text should be in channel 2, and the rectangle in channel 1.

66. Pull down the Draw menu, move the pointer to a light shade of gray (in third row of patterns, the third pattern over), and release the button.

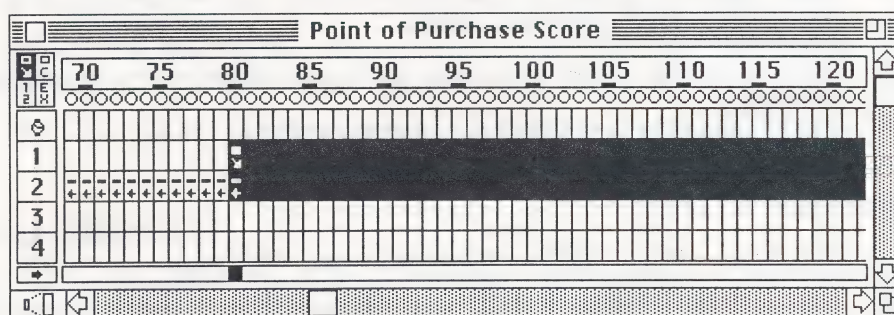
Notice the rectangle fills with that shade.

67. Pull the Draw menu down again, move the pointer to select one of the thicker lines in the top row.

This sets the line width of the rectangle

68. Open the Score from the Window menu.

69. Select channels 1 and 2, frames 80 to 145, by dragging the pointer across those cells. Make sure you have *both* channels 1 and 2 selected as in this illustration:



70. Choose *In-Between* from the Edit menu. This does a "fill right," copying frame 80 to frames 81 through 145.

This causes the text and the gray border to remain in one place for those frames.

71. Click *Rewind* at the Panel. Press *Command-1* to clear the Stage. Press *Command-Q* to start the movie.

72. When you are done watching, press *Command-1* to bring back the windows.

Make the Border Grow

73. Open the Score (if not already open).
74. Scroll to frame 145. Select the cell at channel 1, frame 145.
75. Choose *Copy Score* from the Edit menu.
76. Scroll to frame 175. Move the Playback Head to frame 175 by clicking the mouse in the Playback Head bar on that frame.
77. Select the cell at channel 1, frame 175.
78. Choose *Paste Score* from the Edit menu.

79. Move the cursor to the Stage. Grab the upper left corner of the rectangle (you must click on the little box in the corner which is the Resize Handle) and pull it to enlarge the rectangle.
80. Do the same for the lower right corner, to make the rectangle almost fill the screen. Press *Command-1* to see how the rectangle looks on the Stage; if it needs to be adjusted press *Command-1* to return to the windows and resize the rectangle.
81. Select the cells in channels 1 and 2, from frame 145 to 175.
82. Select *In-Between* from the Edit menu.

This stretches the rectangle primitive over time, as well as doing a "fill right" on the text.
83. Click *Rewind* at the Panel. Press *Command-1* to clear the Stage. Press *Command-Q* to start the movie.
84. When you are done watching, press *Command-1* to bring back the windows.

Add a Piece of Art

Next we will use Art Grabber+ to grab the VideoWorks Logo.

85. Choose *Art Grabber+* from the Apple menu. A new menu called Grabber appears at the right end of the menu bar.
86. Choose *Open* from the Grabber+ menu
87. Select the file "*VideoWorks Logo*," click on it, then click Open.
88. Move the pointer into the Art Grabber+ window. Select the VideoWorks logo graphic as follows: Start above and to the left of the art. Press the mouse button; drag diagonally across the art—this will draw a selection rectangle around the art. When you reach the edge of the screen, Art Grabber+ will automatically scroll.
89. Choose *Grab* from the Grabber+ menu, or choose Copy from the Edit menu. This places the art on the Clipboard.
90. Close Art Grabber+ by clicking its close box.
91. Click position A13 of the Cast.
92. Choose *Paste Graphic* from the Edit menu. This bring the art into VideoWorks.
93. Scroll the Score to frame 175. Click on the Playback bar at frame 175.
94. Click *channel 3* at the Channel Indicator. In the *Ink Menu*, select *Matte*.
95. Drag the VideoWorks Logo out from the Cast onto the Stage, over the gray rectangle.

Notice that the enclosed letters in the VideoWorks Logo appear white. This doesn't look very good, so let's fill them in with the background pattern.

96. Command-click on the VideoWorks Logo on the Stage. That is, hold down the Command key, and click once on the artwork.

This automatically opens the Paint window and brings the VideoWorks Logo to the front.

97. Select the from the Draw menu the same pattern you are using for the rectangle on the Stage. Use the Paint Bucket to fill in the enclosed letters of the Logo.

Note: If paint spills outside of the Logo, select Undo. You don't need to fill in a letter which paint spills out of.

98. Select frames 175 to 230 in channels 1, 2 and 3. (Make sure you have selected all three channels).
99. Choose *In-Between* from the Edit menu. This does a fill right.
100. Click *Rewind* at the Panel. Press *Command-1* to clear the Stage. Press *Command-Q* to start the movie.
101. When you are done watching, press *Command-1* and click *Stop*.

Add a Parting Message

102. Scroll to *frame 200* in the Score and click the *Playback Head Bar* to move the Playback Head to that frame.

103. Click the *Text Box*  at the right end of the Cast.

Your cursor has now become a kind of cross shape. You can still select windows, menus, etc. with this cursor (the point is at the intersection of the cross).

104. Select *channel 4* at the Channel Indicator.
105. Move the pointer out onto the Stage. Draw a rectangle with it, about 2 inches wide by 1 inch tall.
106. Type into it: "Available Now!" Set the Font/Size/Style to New York 18 Bold.

Note: You can only change the Style (bold) when the text is selected (inverted so it looks black).

107. Open the Score and select frames 200 to 230 in channels 1,2,3 and 4.
108. Choose *In-Between* at the Edit menu.
109. Click *Rewind* at the Panel. Press *Command-1* to clear the Stage. Press *Command-Q* to start the movie.
110. When you are done watching, press *Command-1* and click *Stop*.



VideoWorks II

How to Animate



This part describes all of the steps in creating animations. It begins with an overall description of the process ("The Big Picture"). Its sections are then ordered according to the way you would produce an animation. It covers Overview (step 1 in the process), followed by VideoWorks (steps 2 through 13).

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The Big Picture: Overview and VideoWorks

VIDEOWORKS II is a real-time computer animation program. Real-time means that you can create an animation and play it back immediately to see the results of your work. In fact, you can even modify the animation *while it's playing*. There is no lengthy compile or transfer phase.

However, real-time also means that the more artwork you move, the slower it gets. This is not usually a problem, though, if you keep aware of this issue and anticipate its effect. Animations also run faster on faster machines, for example, the Macintosh II compared to the Macintosh SE.

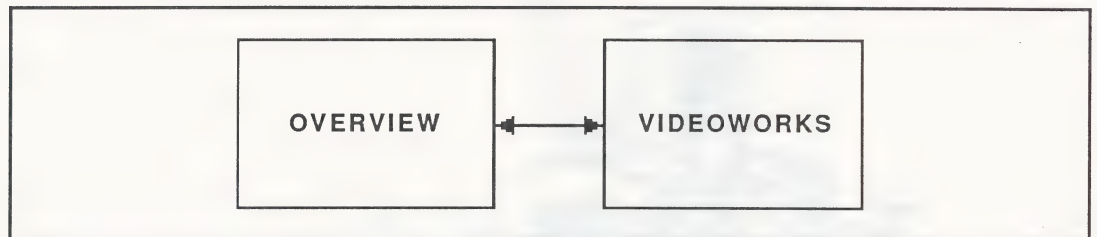
An important feature of VIDEOWORKS II is the ability to freeze the animation at any point and print it. You can easily print an entire series of pictures full-size or reduced to fit a storyboard.

VIDEOWORKS II has two parts, Overview and VideoWorks. You can use either as a stand-alone application, or use them jointly. When we refer to VideoWorks throughout this manual, we are referring to this one part of VIDEOWORKS II.

- **Overview** is for creating animated slide show presentations. It lets you work at the document level, combining completed documents into a finished presentation. If you need to edit these documents, you can launch VideoWorks, MacPaint, MacDraw, or other applications from Overview.
- **VideoWorks** is for creating and editing animations.

You can easily move between these two parts by choosing the command "To VideoWorks" or "To Overview" at the File menu.

With Overview, instead of just adding clip art to your slide show presentations, you can now go a level beyond that and include action by adding *clip animation*. We have included a disk of clip animation for you to get started – or you can create your own.

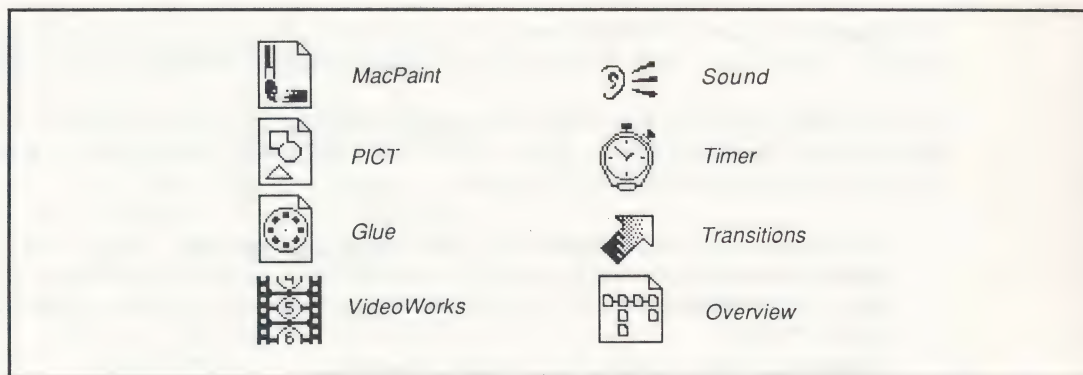


Use Overview to put together slide show presentations and VideoWorks for creating and editing individual animations or annotating a slide show.

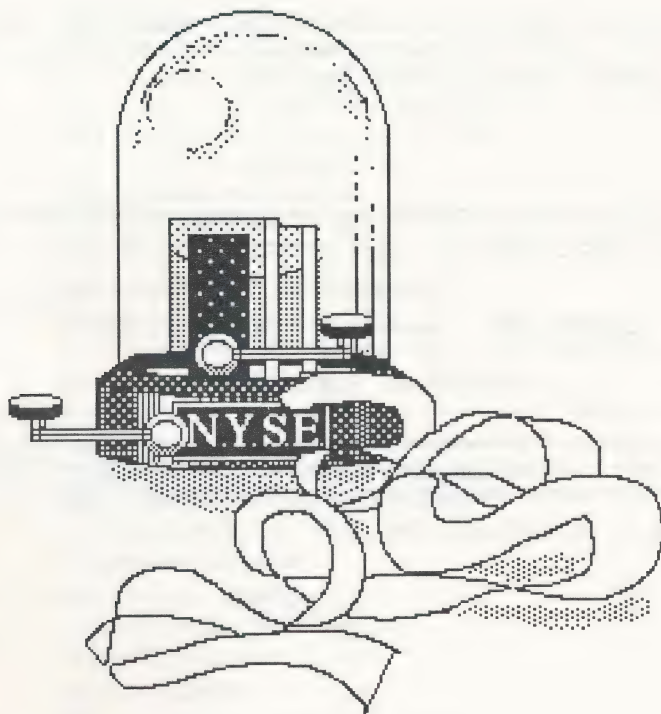
Overview

The Overview window is the starting point for learning VideoWorks. Here you can combine existing movies, MacPaint, PICT and Glue documents together with sound, quickly and easily to form dramatic, animated presentations. And you can add timers or transitions to fill out the presentation.

The following illustration shows the building blocks for an Overview document.



Overview building blocks



Overview Terminology

These are some basic Overview terms. For more terminology, see the Glossary at the end of the manual.

A **slide** is any still picture – any MacPaint, PICT, Glue document – or a VideoWorks document that contains only one picture (a single frame).

A **slide show** is any combination of slides, along with timers and transitions.

An **animated slide show** is a series of slides with animation appearing in front of the slides. We call these animation extras **clip animation**.

A **movie** is an entire animation, complete with various pieces of artwork and a background, all in the same file.

A **presentation** is any of the above – from a single slide to a full animated slide show with movies and sound. You can string movies together and embellish them with introductory title slides, background slides, closing slides and overlay slides that annotate and identify parts.

An **Overview document** is any presentation created in the Overview window.

The **Stage** is the full screen window where you watch the animation.

A Simple Slide Show

Using Overview, you can create the simple slide show shown below. The slide show consists of four MacPaint documents with two transitions and two timers. Notice that time progresses to the right.

This slide show proceeds from left to right as follows:

1. **Slide** "Introduction" displays for 3 seconds with music.
2. **Slide** "Introduction" is pushed right by "Projection", which displays for 3 seconds.
3. **Slide** "Sales" displays for 5 seconds.
4. **Slide** "Sales" dissolves into "Profits", which displays for 5 seconds.

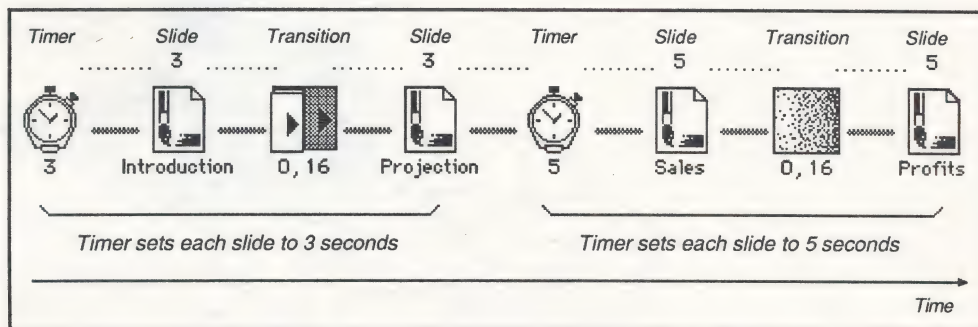
Transitions control how one picture changes to the next. They come in over two dozen varieties, including wipes, reveals, pushes and dissolves.

The first timer sets the duration of the first two MacPaint documents to 3 seconds each (notice the "3" above each MacPaint document). The second timer sets the remaining two MacPaint documents to 5 seconds each.

This slide show was created very simply by dragging the icons into the arrangement show. You can easily re-arrange the presentation by dragging the icons into a new order. Generally, you can simply drag out any of these building blocks onto the working area to build up your presentation. You can start with a single slide (MacPaint document or PICT) and build to a series of slides. Then annotate your slides with overlays. Add clip animation. Add movies.

If you wanted to modify the "Projection" document. You would select that icon and choose the Launch Editor command. This would launch MacPaint and open up the document "Projection" for you to edit. When you have saved and quit MacPaint, you would be returned to this Overview exactly as you left it.

Similarly, you can launch VideoWorks to modify a VideoWorks document or MacDraw to launch a PICT document. In fact, you can launch to any program that can save in the MacPaint or PICT format, such as GraphicWorks, SuperPaint and MacDraft.



Overview Presentation #1 – A SIMPLE SLIDE SHOW

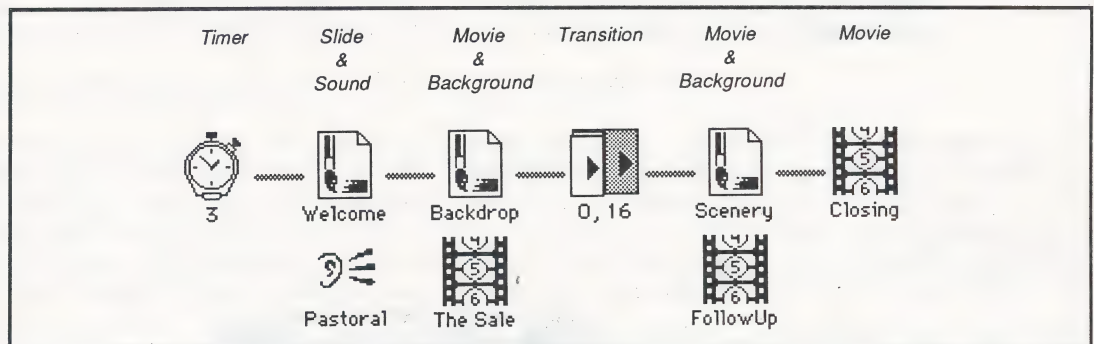
A Combination of Movies and Slides

The following is a more involved Overview document, containing both movies and slides. This presentation plays out from left to right as follows:

1. **Slide and Music** "Welcome" appears for 3 seconds with music "Pastoral."
2. **Movie and Background** The slide "Backdrop" appears with "The Sale" animation in front of it.
3. **Transition** Wipe left from "Backdrop" to "Scenery."
4. **Movie and Background** "Scenery" appears with "Follow up" appearing in front of it.
5. **Movie** The "Closing" animation plays, to finish the presentation.

The purpose of the Timer is to set a duration for slides unaccompanied by movies. (Movies, of course, have their own duration, but slides do not.) We'll leave further description for later.

As we mentioned, you can freely re-arrange these documents simply by dragging them. You can also easily add, remove or duplicate any of the documents to change the presentation.



Overview Presentation #2 – COMBINATION OF MOVIES AND SLIDES

Here are more ideas for creating presentations with Overview:

- Create a slide show made up strictly of MacPaint documents.
- Annotate your slide show by adding arrows and words. Do this by overlaying a VideoWorks frame in front of the slide. For example, if your slide shows a map, you could overlay an arrow with a label pointing out where your company is located.
- Add documents from MacDraw, MacDraft, GraphicWorks, SuperPaint, MacCAD, PowerPoint and other applications. You can also add any Glue document. Glue is an application that allows you to bring in pictures and text from almost any application, including Excel, Illustrator, and PageMaker – especially those that cannot save as PICT or MacPaint files.
- Add clip animations to your slide show. You can begin with the clip animations we have supplied on the Movies disk.
- Add a background to a movie.
- String movies together, to make presentations that are 10, 15 minutes or even longer (on one 800K disk).
- Add a title slide before a movie, intermediate slides between movies, or a closing slide at the end of a movie.
- Use Overview as a convenient "shell" for viewing any type of document. Save off to disk any combination of documents, practice presentations or special demonstrations.

We're now going to show you VideoWorks. It uses a more sophisticated process – but gives you more control.



VideoWorks

VideoWorks is the animation part of VIDEOWORKS II. While Overview lets you combine and arrange existing documents, including animations, VideoWorks lets you create and edit those animations. It lets you draw with a paintbrush and type in text, creating anything from simple slide overlays to elaborate animations. You can run VideoWorks either stand-alone or launch it from Overview. For more terminology, see the Glossary at the end of the manual.

VideoWorks Terminology

A **movie** is a VideoWorks animation, saved to the disk in its own file. The icon for a movie is shown below, on the left. The terms file, document and movie are loosely interchangeable.

A **sequence** of art is a series of related pictures in one channel. For example, a person walking, a frog leaping, a horse galloping, a ball bouncing, or text scrolling across the screen. When we use the term *sequence* by itself, it means *sequence of art*.

Artwork is any picture or graphic image. It can be created in Paint, it can be a QuickDraw shape, or it can be brought into VideoWorks using Art Grabber+, Scrapbook or the Clipboard. We also refer to artwork as **art**.

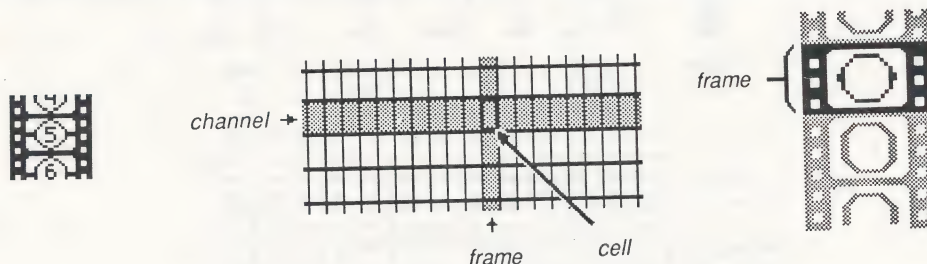
A **castmember** is a piece of artwork or text that is stored in the VideoWorks **cast**.

The **cast** is what holds all of the artwork and text in VIDEOWORKS II.

A **frame** is the entire scene that appears on the Stage at one moment in time. Think of it as a frame in a strip of film. Thus, the length of a VideoWorks movie is measured in frames. A movie can be hundreds or as long as thousands of frames. In the Score, a frame is represented by a vertical column across all channels. The frames are numbered – the numbers appear across the top of the Score. In this sense, a frame is roughly an increment of time. The **current** frame is the frame that currently appears on Stage – it is also marked by the position of the Playback Head.

A **channel** is a row in the Score. Each channel holds one piece of artwork at one time. The Score has 24 animation channels and another channel for sound, tempo and transitions.

A **frame cell** is one of the small boxes in the Score, one channel high and one frame wide. Each cell represents of a single Castmember at one moment in time.



Ink lets you control whether artwork is transparent or opaque. Inks also let you reverse white and black, create ghost images, change solid black regions to any pattern, plus create other effects. Basically, ink determines how artwork interacts with any artwork behind it.

The Score is where all of the animation information is stored in VideoWorks. The Score is also where the animation can be edited in detail, and where sounds or transitions can be added.

A Simple Animation

Using VideoWorks, you can create the simple movie shown below – an animation of a woman walking by a parked cab. Of course, the frames would appear one at a time on the screen. We have shown the five-step sequence in one picture, spaced apart, for purposes of illustration.

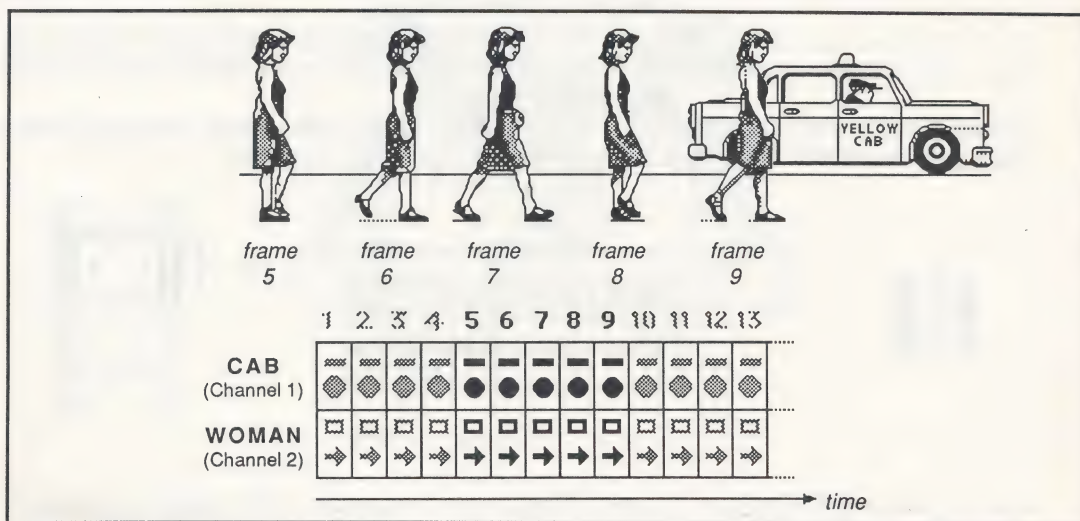
The walking woman is an example of action made up of a sequence of five pieces of art (castmembers). We have taken this sequence from the middle of a movie, frames 5 through 9. At the bottom of the illustration is a representation of the same sequence taken from the Score. The Score contains notation indicating how the action progresses over time.

Like the Overview window, this animation plays left to right in the Score. The animation runs as follows:

- Frame 5** Woman stepping with her left foot
- Frame 6** Woman in the middle of her first step
- Frame 7** Woman in full stride
- Frame 8** Woman taking her second step with her right foot
- Frame 9** Woman finishing her second step

This movie plays at the speed you set in the Panel. The woman and cab each occupy their own channel in the Score. Notice the arrows – they indicate the direction the woman is moving. The Score allows you to also identify the castmember number, position on Stage and inks (we'll describe these later). The Score represents the entire movie like an orchestral score represents an entire symphony, or a script represents an entire theatrical play.

You could change the 3-dimensional effects by making the woman pass *behind* the cab by putting the cab in channel with a higher channel number than the woman, say channel 3. At any time you can change the foreground priority by moving either the woman or cab to a new channel.

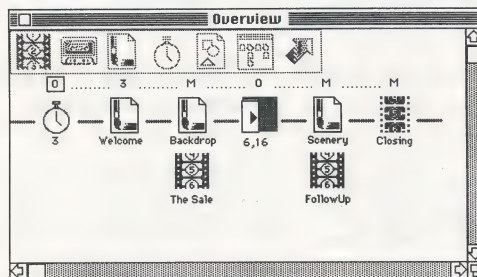


An animation of a woman walking past a cab, shown with the Score.

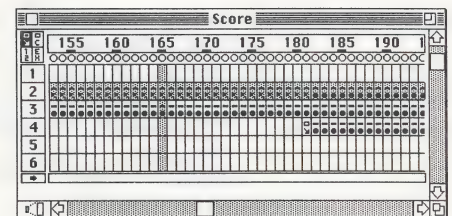
Side-by-Side Comparison of Overview and VideoWorks

You can draw a parallel between VideoWorks and Overview. The Overview window is analogous to the Score and Cast. Also, the VideoWorks frames are analogous to Overview slides. This chart shows the similarity between Overview and VideoWorks. Notice how similar the Panels are, as well.

Overview



VideoWorks



The Process of Animation

The VIDEOWORKS II process of animation can be broken down into the following parts. These parts are the section headings that form the remainder of "How to Animate." We're including each section's page number for reference.

Overview

(Page 106) 1. Working with Overview

The Overview window is the place to combine movies, artwork and sound into a single presentation. While Overview is easy to use, the results can be elaborate.

You can combine movies, MacPaint, PICT and Glue documents into a slide show, and add fancy transitions between them. You can include artwork from GraphicWorks, charts from Excel, drawings from MacDraft, digitized photographs from Thunderscan, 3-dimensional renderings from Easy3D, drawings from Illustrator, and presentations from More.

You can show movies in front of the slides; annotate a slide using VideoWorks; synchronize the slides to music; and print the slides full-size or reduced to fit a storyboard.

VideoWorks

The following are all of the steps involved in creating a complete movie within VideoWorks. Of course, not all of these steps would apply to a simple movie. As you read, refer to the illustration "Four Steps to the VideoWorks Process" located at the end of these steps.

(Page 126) 2. Creating Artwork – The first step in any animation is creating or importing the artwork. You can create your own art in the Paint window in VideoWorks, or you can bring in outside artwork. If text is an important part of your animation, you should create text at this point as well.

(Page 130) 3. Creating an Animation – Once you have the artwork, the second step is to animate that artwork. There are two different techniques available for producing an animation:

- **Real-Time Recording** is the process of recording artwork as you move it around on the Stage. Your movements with your mouse are recorded in real time, rather than one frame at a time. Tutorial #4, the Bouncing Face, shows the characteristic smooth and fluid motion of Real-Time Recording.
- **Frame-by-Frame Animation** is the process of animating one frame at a time, placing and arranging artwork on the Stage, and doing precise editing. It is the main way you interact with animations. You can also use In-Between, which automatically moves artwork for you between two points. Tutorial #6 makes use of frame-by-frame animation in creating the jumping frog one frame at a time.

You can freely use either technique at any time in a single animation. They are simply two different ways of recording. Use Real-Time Recording when recording a single piece of art moving around on the Stage, and Frame-by-Frame in almost every other case.

(Page 136) 4. Controlling an Animation – At the Panel you can play an animation, stop it, step one frame at a time (either forward or backward) and rewind to the beginning, much like a tape recorder. You can also change the speed, and turn the sound or lights on or off. An indicator lets you see which channels are occupied.

- (Page 158) **5. Editing an Animation** – Once you have created a basic animation, you may find it is not exactly like you had planned. Perhaps one piece of artwork moves in front of another instead of behind it. Perhaps the action needs more animated artwork, or needs some taken away. Perhaps the action is taking place at the wrong place on the Stage, or is happening too fast. Whatever the case, this is where editing comes in – to modify the animation.
- (Page 160) **6. Adding QuickDraw Shapes** – QuickDraw Shapes are rectangles, ovals and lines that you can draw directly on the Stage, rather than in Paint. The tools for these shapes are found at the right end of the Cast window. These shapes take up less memory than identical shapes drawn in the Paint window.
- (Page 161) **7. Adding Film Loops** – Each Film Loop is a sequence in real-time, usually one that cycles as it moves, such as a ball spinning, bird flapping its wings, a coin flipping, or a person walking. Film Loops can cut down the time it takes to record these animations, and are a great way to liven up an animation.
- (Page 164) **8. Adding Text** – Text is an important part of many animations. VideoWorks provides two ways to produce text: in the Paint window (bit-oriented text) and in the Text window (character-oriented text). Each kind of text has its advantages. Paint window text is good for moving across the screen, but text in the Text window takes up less memory and is easier to change (it has a search and replace feature).
- (Page 166) **9. Adding Sound, Tempos and Transitions** – Once you animate the artwork, you can add sound effects or music to accentuate it. You can also modify the tempo and create transitions between frames.
- VideoWorks provides you with the capability for music, speech, sound effects and sampled sounds. You can enter sounds into the sound channel, where you can synchronize the sound to the pictures. Nearly 100 built-in sounds are available.
- (Page 173) **10. Using Inks** – Inks modify the way artwork appears on the Stage and how its patterns interact with artwork behind it. For example, makes artwork transparent. Inks also allow you to leave trails behind artwork, see the background through holes, remove the white box from around artwork, change black (or white) to any pattern, and apply other visual effects.
- (Page 175) **11. Importing Artwork** – You can bring in graphics to use in your animations. To give just a few examples: Artwork from MacPaint or GraphicWorks, charts from Excel, drawings from MacDraft, digitized photographs from Thunder scan, 3-dimensional renderings from Easy 3D, and drawings from Illustrator. All of these can be used in the Overview window. Any artwork can be brought in as castmembers and manipulated within a movie directly on the VideoWorks Stage.
- (Page 177) **12. Printing** – VIDEOWORKS II allows you to print any frames from your animation at full size, or reduced to 50% or 25% for storyboards. You can use this feature for keeping records or making presentations without a computer – on paper, or with an overhead projector.
- (Page 180) **13. Advanced Animation** – Once you have created a few animations, you may want to go beyond the basics. Advanced techniques can markedly improve an animation, as well as reduce the amount of effort required to create it.

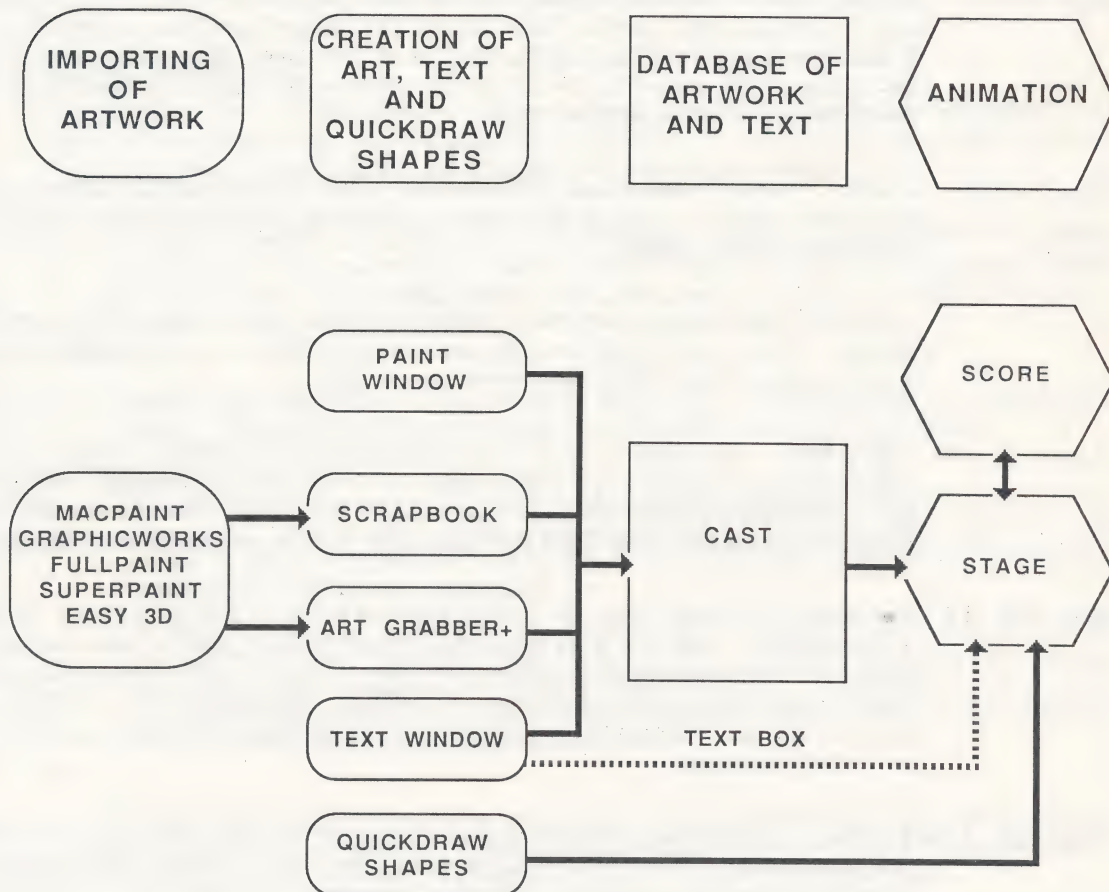
Stage, Castmembers and Score

The diagram below shows the process of using VideoWorks. It shows how you can import and create art, bring it into the Cast, animate it on the Stage, and record it in the Score.

The Cast holds art and text. We call each piece of art or text that resides in the Cast a castmember. Each castmember waits backstage, so to speak, for its chance to go on Stage and perform in a VideoWorks movie. Some castmembers, like background scenery, might be on Stage for the entire movie. Other castmembers might be on Stage for a brief moment.

Almost all of the artwork that appears on the Stage comes from the Cast. The only exceptions are QuickDraw shapes. You can create QuickDraw shapes and type text directly on the Stage.

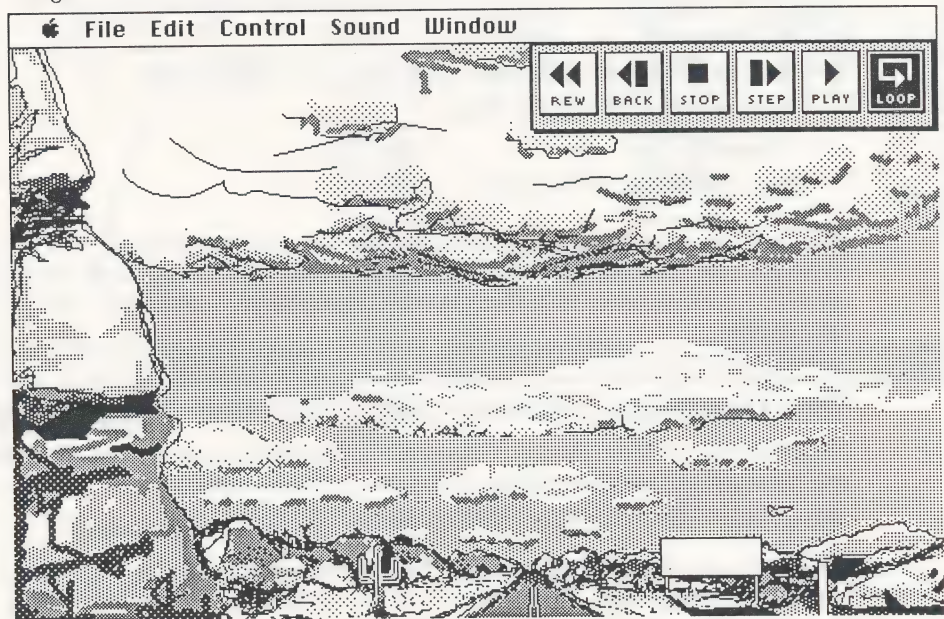
THE VIDEOWORKS PROCESS :



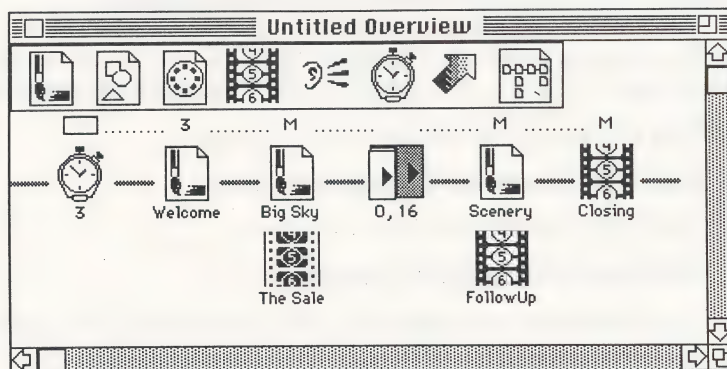
Overview

The Presentation Side of VIDEOWORKS II

Stage



Overview Window



This section describes Overview, the first step in the process of animating with VIDEOWORKS II. Overview allows you to work with entire documents to create animated slide shows.

1. Working with Overview

Overview allows you to create an animated slide show. You can easily arrange your movies, MacPaint and PICT (MacDraw) documents for playback in any order you prefer, and include sound. You can also add transitions between any documents.

Here are a few of the many things you can include in an Overview presentation:

- Create a slide show – a series of MacPaint documents
- Add clip animation in front of slides – like clip art, but animated
- Include movies
- Overlay annotation on existing slides or movies for emphasis
- Add title slides and closing slides
- Add sound
- Any combination of the above

You have a great amount of control over these animated slide shows. You can play, stop, and step backward and forward. You can operate the mouse like a slide projector button, letting you step forward. You can even skip through the documents to move quickly to a particular place in the presentation.

The Overview Window and Overview Documents

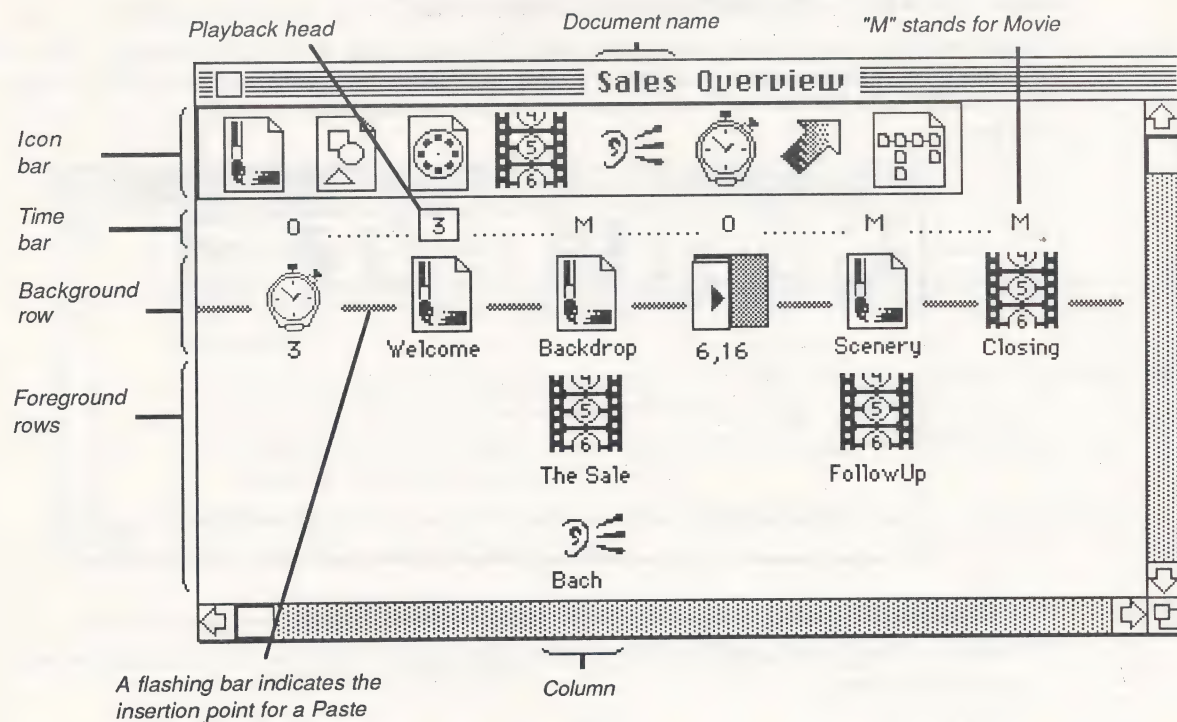
The Overview window displays the current Overview document. An Overview document can be any presentation including slides, annotation, clip animation, movies, transitions and sound. The name you give the Overview document appears in the Title bar.

Even for very large presentations, an Overview document remains very small, taking up very little memory (typically 1K). That's because it is a collection of document *names*. When you play an Overview document, it opens up the documents that are called out. Therefore, in the illustration below, if you were to go into MacPaint and change the document titled "Welcome," that change would take effect next time you ran the Overview document.

An Overview document is any arrangement of icons in the Overview window. We refer to this as a presentation. The way you typically build a presentation is as follows:

1. Drag slides or movies into the background row.
2. Add Timers to control the timing of the slides.
3. Add Transitions between slides and movies.
4. Add Sound below any slide or movie.
5. Add VideoWorks documents below any slide (or movie) for annotation or clip animation.
6. Choose Get Info for each document to fine-tune the presentation.

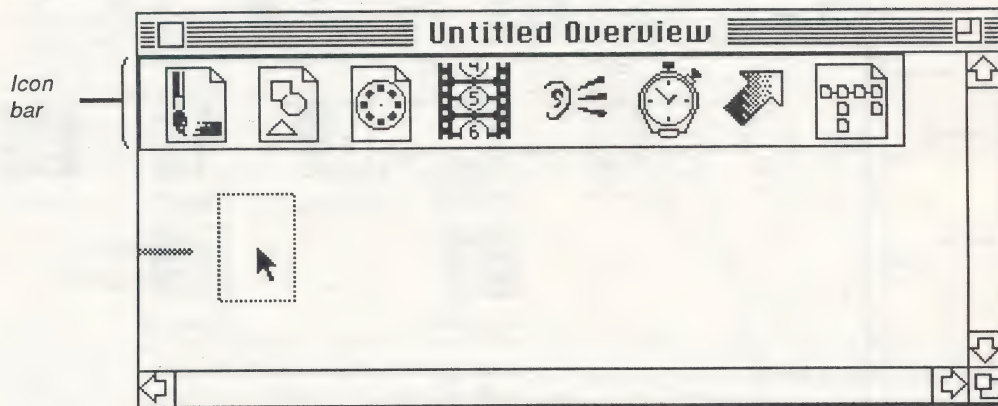




A presentation of movies and slides with a transition, a timer and sound.

How to Add Documents to Overview

The following procedure describes how to drag icons out into an Overview document. First get into Overview. If you're in VideoWorks, choose To Overview in the File menu. Then drag an icon from the icon bar into the working area. The document appears as an icon in the Overview work area.



Documents – The documents listed below are the slides and animations you can view.

When you drag a document icon out, a dialog box appears. Click on the document you want, then click **Open**.



MacPaint document



Overview document



Glue document



PICT document



VideoWorks document



Timer – Timers let you set how long each slide plays.

When you drag the Timer icon out, position it ahead of (or beneath) the first slide whose length you want to affect. Type the number of seconds you want each slide to be displayed, then press Return. Thus, if you type "5", each slide will play for 5 seconds.

As you notice, the number you typed appears below the Timer. It also appears above each slide that follows, indicating its duration. This Timer remains in effect until another Timer is encountered. For more details, see "Using Timers."



Transition – Transitions let you determine how one picture changes into the next.

When you drag the Transition icon out, place it between the two documents you want to affect. (Transitions also work at the very start or end of a movie.) A dialog box appears with the transition choices. Select the Transition you want, then click **OK**. (Chunk Size and Delay are described later.) For more details, see "Using Transitions."



Sound – You can add any sound that is available in the Sound menu.

When you drag the Sound icon out, place it where you want it to occur. Pull down the Sound menu. Move down to the category you want and pause – the submenu should pop up. Move sideways and choose the sound you want. For more details, see "Using Sound."

Note: Sound Menus – If you have a Macintosh System prior to System 4.1, your Sound menu operates differently. See the description under "Sound Menu" in the VideoWorks Reference section.

Controlling an Overview Document

You can control the playing of an Overview document five ways: from the Panel, at the Control menu, with the mouse button, with the Space Bar, and with the Playback Head.

Panel

Click on any of the Panel buttons:

- **Play** button starts the presentation;
- Press **Stop** button to stop it.
- **Step** skips to the next column and plays that column. The action then either stops at the end of that column (if it was previously stopped) or continues (if it was previously playing). In other words:

If the document is **stopped** when you press **Step**, the presentation skips to the next column, plays through that column and stops.

If the document is **playing** when you press **Step**, the presentation skips to the next column and continues playing from there.

- **Rewind** returns the presentation back to the beginning (and stops it if it was running).
- **Back Step** steps backward one column.

Note: The presentation will not stop during a transition. If you try to stop the presentation during a transition, it will continue through the transition and then stop

Control Menu

All of the controls described under Panel are duplicated in the Control menu. The controls are identical.

Mouse Button

When you click on the Stage the mouse button operates exactly the same as the Step button when the presentation is playing. That is, each time you press the button, the presentation skips to the next document. In a slide show, when the presentation is stopped, pick up the mouse and use the button like you would the remote control on a slide projector, to run the slides at your own pace.

Space Bar

When a presentation is playing, you can stop it at any time (except during transitions) by pressing the Space Bar on your keyboard. To continue, press the Space Bar again.

Playback Head

You can jump to the start of any document in the presentation simply by clicking in the Time Bar on the number at the top of that column – the Playback Head jumps to that position, and then the document appears on the Stage.

Numeric Keypad

If your Macintosh has a numeric keypad, you can also control the Overview from it. Here are the functions of the various keys on the numeric keypad:

<u>Keys</u>	=	<u>Commands</u>
Enter		Play
1,4		Back Step
2,5,Period		Stop
3,6		Step
0		Rewind

Organizing Documents in Overview

The way you typically build a presentation is as follows:

1. Drag slides or movies into the background row.
2. Add Timers to control the timing of the slides.
3. Add Transitions between slides and movies.
4. Add VIDEOWORKS II documents below any slide (or movie) for annotation or clip animation.
5. Add Sound below any slide or movie.
6. Add VIDEOWORKS II documents into the background row.
7. Choose Get Info for each document to fine-tune the presentation.

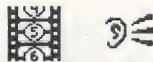
You can re-arrange documents by dragging them. When arranging documents, there are a few rules to remember:

- Place MacPaint, PICT, Glue and Overview documents in the background row.
- To make a document appear in front of another document, place it *beneath* that document.

Background Row:



Foreground Rows:



Sound, transitions and timers can actually be included in either row, but are typically as shown.

VideoWorks documents can be in either row. You generally put movies in the background row and annotation and clip animation in the foreground row. If you wish, you can keep adding more annotation, clip animation and VideoWorks documents at the bottom of any column. If you were to keep adding these, you would eventually reach a limit. The technical limit is: *You are allowed up to 24 channels in any one column.* (Channels are described next.) Notice this maximum is *not* limited by the number of documents used. Typically, you would reach this maximum only if you were including a movie that uses lots of channels. If you go beyond 24 channels, you just won't see the extra channels.

Re-Arranging Documents – It's easy to re-arrange documents.

- To relocate a single document, simply drag it to a new location (note that the window will automatically scroll when you reach the edge).
- To move a group or column of documents, select them (as described below), then drag the selected group to a new location.
- To Cut and Paste or Copy and Paste the documents, select them (as described below), then choose the commands from the Edit menu. (You can even Cut and Paste to the Scrapbook.) You can Paste in between columns of documents by clicking on the gray line between them.

The following table describes how to select documents in the Overview window.

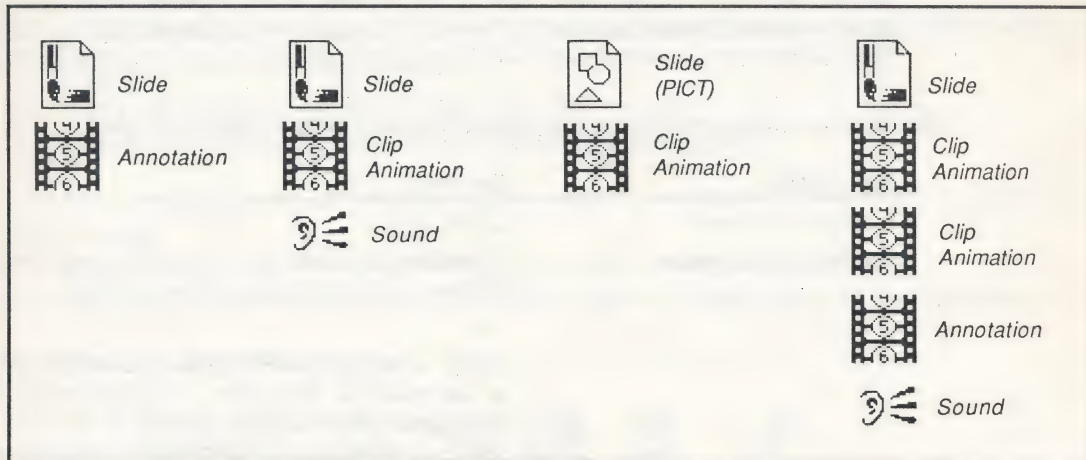
To select:	Do this:
A single document	Click on it.
A group of documents	Click on the first document, then Shift-click on the last one. All documents in between the two are selected. –or– Draw a selection rectangle around the entire group, as you would in the Finder. You do this by starting with the pointer above and to the left of the first document, dragging the pointer diagonally across the documents, then releasing the mouse button.
A column of documents	Command-click on any document in a column selects the entire column.

VideoWorks Annotation, Clip Animation and Movies – All three of these categories are just different kinds of VideoWorks documents. (They all use the same VIDEOWORKS II icon.)

- VideoWorks annotation is very much like a MacPaint slide – one frame, with no animation, usually just text and arrows. It overlays in front of a slide (or movie).
- Clip Animation is an animation *extra*, that is, a small movie with only one animated character or object, such as a person doing back flips, a coin flipping, or a logo flashing. It is used in front of a slide like clip art.
- A movie usually is a full-screen animation, complete with its own background.

Any kind of VideoWorks document can be in any row, and all three are created in VideoWorks in the same way.

Typical arrangements of documents within a column – The following diagram shows typical arrangements of slide shows. The simplest shown is a slide with annotation in front of it. The most sophisticated is a slide with two clip animations, an annotation and sound (perhaps music). Of course, the arrangements are limited only by your imagination.



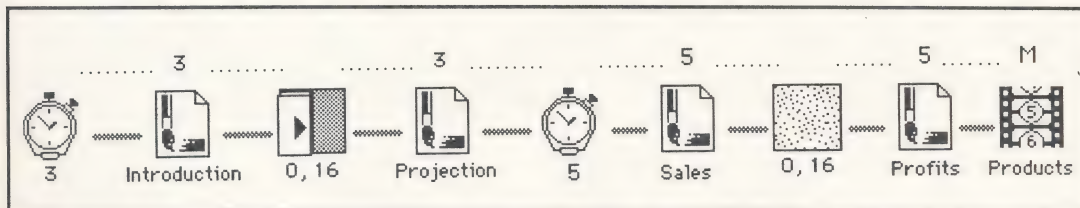
Typical ways to arrange columns of documents.

Using Timers

Movies have a duration of their own – slides do not (MacPaint, PICT, and Glue documents). You use Timers to set the duration of slides unaccompanied by movies.

When you drag a Timer into the Overview work area and type the time, it appears below the Timer. It also appears above each slide that follows (until the next Timer), indicating its duration. If you want to set a different length for another set of slides, you can add a second Timer.

The initial default for *movies* is for them to run their full length, regardless of the timer setting. However, with Get Info, there is an option to make the length of movies also set by the timer (by repeating the movie or cutting it short). "M" (Movie) means this column is determined by the movie (unaffected by the Timer). If *every* movie in a column is using the timer, the M will disappear, to be replaced by the number specified by the Timer. See the section on using Get Info below.



The numbers above the documents indicate the duration in seconds each slide is shown.

Using Transitions

A transition determines how one picture changes to the next. There are four basic categories: Wipes, pushes, reveals and dissolves.

- **Wipe** – A line wipes across the screen which unveils the second picture as it covers the first picture. Neither picture moves (as in a Push or Reveal). There are many kinds of wipes: to the left, to the right, up, down, vertical in to center, vertical out from center, horizontal in to center, horizontal out from center, square in to center and square out from center.
- **Push** – Both pictures move together – the first picture pushes the second picture off the screen.
- **Reveal** – The first picture moves away to reveal the second picture behind it. A reveal can start at any edge or corner, outward from the center, or inward from the four corners into the center.
- **Dissolve** – The first picture dissolves, gradually exposing the second picture. The dissolve can be pixel-by-pixel or by small or large boxes.

When you drag a Transition icon into the Overview area between the two documents you want to affect, a dialog box appears, with the transition choices. You can change the Transition, Chunk Size and Delay:

- **Transition** – Click in the box for the transition you want.
- **Delay** – (in 60ths of a second) The amount of time between each incremental wipe, push, reveal or dissolve (chunk).
- **Chunk size** – (1 to 512, in pixels) The distance between each incremental wipe, push, reveal or dissolve. The chunk size is also good for controlling the speed of the transition – the smaller the chunk size, the slower the transition. Can be set to larger than 512 on a larger screen.

When you click OK, the Transition icon appears in the Overview area. The numbers below the transition indicate the delay and chunk size.

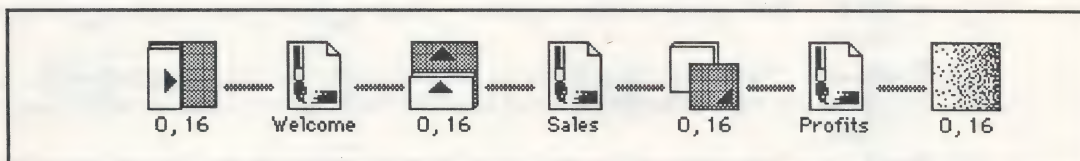
Note: If you put a Transition *below* a slide, it will work the same it is placed immediately to the left of that slide.

	☐ wipe left to right		☐ reveal north
	☐ wipe right to left		☐ reveal northeast
	☐ wipe top to bottom		☐ reveal east
	☐ wipe bottom to top		☐ reveal southeast
	☐ vertical out from center		☐ reveal south
	☐ vertical in to center		☐ reveal southwest
	☐ horiz out from center		☐ reveal west
	☐ horiz in to center		☐ reveal northwest
	☐ square out from center		☐ dissolve
	☐ square in to center		☒ boxy dissolve
	☐ push left		
	☐ push right		
	☐ push down		
	☐ push up		
	Delay: 0 /60ths of a second		
	Chunk size: 16		
OK CANCEL			

Get Info on a Transition – To identify a transition, click on it, then select **Get Info** from the Edit menu.

Changing a Transition – To change a Transition, use **Get Info** as described above. Change the setting then click OK.

Shortcut: Double-click on the Transition. The Get Info box appears.



The push-right, wipe-up, reveal-southeast and the dissolve transitions. The numbers below the icons indicate the Delay and Chunk Size for that transition.

Using Sounds

You can add any sound that is available in the Sound menu. To change a sound, select the sound icon you want to change by clicking on it, then choose a new sound from the Sound menu.

Remember that VideoWorks documents can have sounds also. In a given column, only one of the icons can control the sound. Generally, the topmost icon in the column that has sound will be the one that controls the sound. You can turn off the sound for a specific VideoWorks document by using Get Info (see below).

Also remember that you must have "Sound Is On" selected in the Control menu to hear sounds, and that you can control the volume from the Control Panel desk accessory.

Using Glue Documents

Glue is an application for the Macintosh that gives you one simple, easy method for transferring text and graphics into VideoWorks. You can import images from applications like Excel, MacProject, Microsoft Chart, PageMaker or ReadySetGo. The image can be as large as a full printed page.

You must have Glue in order to save the original image from one of these applications to disk (this is done via the Print command). Once saved as a Glue document, what was originally text and graphics on a page, or numbers in a spreadsheet, is now a single image. You can use this as part of your slide show.

In this manual, what we refer to as "Glue Documents" are termed "ImageSaved Files" by Solutions, Inc. Glue is produced by Solutions, Inc., P.O. Box 989, Montpelier, Vermont, 05602.

Using Clip Animation

Clip animations are the equivalent of "clip art" for your animated slide show – they are short, succinct animated graphics (movies) that you can easily combine into your own presentation. A clip animation can be as simple as a moving arrow, a spinning coin. It can be an animated industry symbol, a flashing company logo, a sparkling marketing message or a secretary typing at a desk.

A clip animation is really just a short VideoWorks movie, usually with only one animated character or object. You normally place a clip animation in front of a slide.

Note: When you place more than one clip animation in a column, the lower one in the column will be in the foreground. Any documents above it in the column will appear behind it on the Stage.

You can set many characteristics of a Clip Animation by using its Get Info window (see "How to Get Info on a VideoWorks Document" which follows).

How to Annotate a Slide

If you have placed a slide in the Overview work area, you can add arrows, labels, and even clip animation with a VideoWorks overlay as follows.

Start in Overview with any slides in the work area as you want them. Then:

1. Drag the **VideoWorks** document icon from the top row into the working area just below the slide you want to annotate.

The same dialog box appears that was described in the previous procedure "How to Add Documents to Overview."

2. Click **New**.

This launches VideoWorks and opens a new VideoWorks document (you should answer "Yes" to the "Save Changes?" dialog).

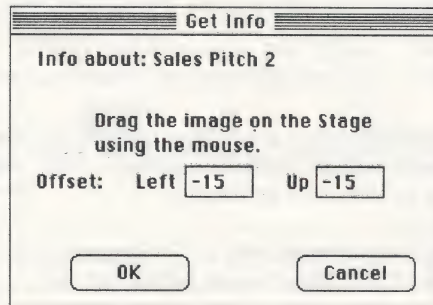
Now you're in VideoWorks, with the slide appearing as a background. You can use any of the tools available to annotate your slide. The quickest way to add text is with the Text Box tool at the right end of the Cast (the **A** tool). Click on it, and your cursor will change shape. Drag a rectangle on the Stage where you want your text to go. After you type the text, click on the Stage outside the text (to de-select it), and you will notice the box becomes transparent. You can move the text box by clicking on it (to select it) and dragging it by its edges, or re-sizing it with the handle at the lower right.

When you are done annotating your slide, Save this VideoWorks document you just created and Quit VideoWorks – you will return to Overview returns, just as you left it. The document you just created appears in the Overview work area. If you want to edit the document you just created some more, see the section which follows on "How to Launch Applications from Overview."

There are many other tools and techniques you can use within VideoWorks to annotate your slide. You can easily add lines, boxes and circles using the QuickDraw shapes. Or you can open the Paint window to create some artwork. One of the most powerful techniques available is to use a Film Loop to Real-Time Record some animation exactly where you want it. You might make a VideoWorks document that consisted only of special sounds for a particular slide. You can also open an existing VideoWorks document, modify it, and Save As to make your own special version of it. See the VideoWorks section of "How To Animate" for more details.

Positioning a MacPaint, PICT, or Glue Document

When you want to adjust the position of a MacPaint, PICT or Glue document on the screen, simply select the icon and choose Get Info from the Edit menu (a shortcut is to double-click on that icon). The Overview window will disappear, and you will see a dialog box like this one:



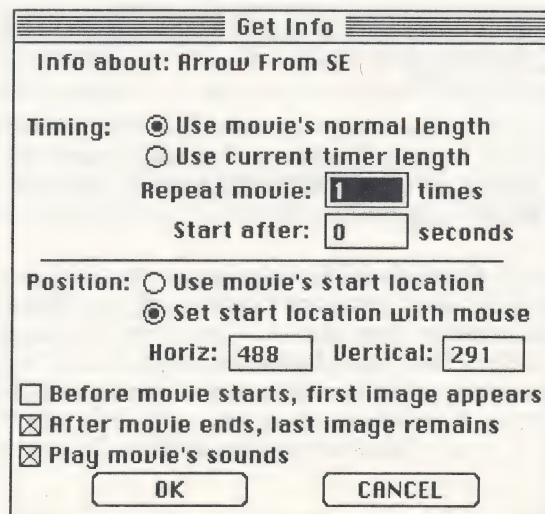
You can move this dialog to any part of the screen (by dragging its title bar) so that you can see behind it. When you move the mouse pointer onto the Stage, the pointer changes to a hand. You can then drag the image to a new position on the Stage with the hand.

If you click on the word "Info About" you can see the full path name of the document (that is, the list of folders it is in).

Using Get Info on a VideoWorks Document

Get Info on a VideoWorks document lets you adjust the timing and positioning of the VideoWorks document. Select the VideoWorks document, and choose Get Info from the Edit menu (shortcut: double-click on the icon). The Overview window will disappear, and you will see a dialog box like this one. You should move the dialog box to be able to see the animation behind it.

When you change an option, you will see its effect on the Stage. For example, after you change the number of times a movie repeats, the movie will start playing (and will repeat for the number of times you set it for). Note that you can click OK before the animation has finished.



The Get Info options are as follows:

Timing Options:

- Use movie's normal length
- Use current timer length

These allow you the option of letting the movie run its normal length or making its length be set by the timer (by repeating the movie or cutting it short). This will not change the tempo of the movie, only the length of time it is shown.

- Repeat movie: ____ times

This allows you to set the number of times a movie will repeat.

- Start after: ____ seconds

This allows you to start the movie a certain number of seconds after the background slide first appears. Note that you can use decimal seconds (like 1.5). If you want the first image of the slide to appear before the movie starts, click on the check box that sets that option.

Positioning Options:

- Use movie's starting location
- Set starting location

This option allows you to change where animation appears on the Stage. To do so, move the mouse pointer out over the Stage, it will turn into a cross cursor. This means that you can set the starting location of the movie by clicking anywhere in the Stage window. When you click in the Stage window, the animation starts happening (note that if you have a delay set, there will be a delay before the animation starts), but starting from the point where you clicked.

When the animation has finished, you will see a pair of gray lines on the Stage. These indicate the starting location point that you just set. You can use these lines to exactly position the animation. For example, if you have an arrow and it overshot its goal by one inch, click an inch away from where the gray lines intersect.

If you want to go back to using the starting location associated with the original movie, click on that option.

Note that you can set the starting location numerically as well. This is useful for exact positioning.

Other Options:

- Before movie starts, first image appears

This is only meaningful if you have a delay on the start of the movie (see the option above).

- After movie ends, last image remains

The default is for this check box to be checked. If you want the last image of the movie to disappear when the movie ends (leaving whatever slide is in the background) the turn off this option.

- Play movie's sounds

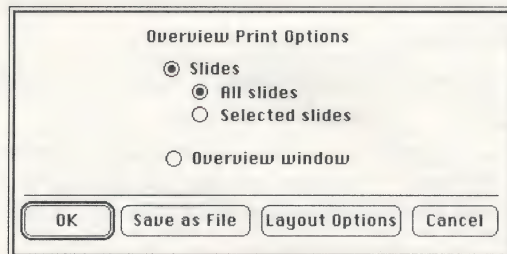
The default is for this check box to be checked. If you have a movie with sound, but you want some other sounds to play for that column, you can turn off this option. (Another way to do this is to rearrange the order of the slides in the column, see the section on Using Sounds above).

If you click on the word "Info About" you can see the full "path name" of the document (the list of folders it is in).

Printing in Overview

In Overview, the Print command lets you print slides or the Overview window (shown below). With the Layout Options, you can print full-size, 50% and 25%. At full size, one slide is printed per page. The smaller are particularly nice if you want to storyboard your animation. You can also include the date, filename, frame number, and your own footer in the printout.

When you choose Print from the File menu, the following dialog box appears:



All slides – Prints all slides in the current Overview presentation. If movies are present, it prints the first frame of each movie. Technically, any artwork that appears on the Stage at the start of each column is printed, including any annotation, clip art or clip animation.

Selected slides – Prints a subset of All slides by printing only those slides that are selected in the Overview window. To select a series of slides, click on the first one, then Shift-click on the last one in the series – all slides in between the two are included.

Overview window – Prints the arrangement of icons that appears in the Overview window, to record how you arranged your presentation.

OK – Accepts the choice you made. After you click OK, the standard Macintosh print dialog box appears, giving you the choice of number of copies and range of pages (From... To...). Here, the page number refers to the order sheets of paper that come from the printer (and is unrelated to frame number). Thus, page 5 would be the fifth sheet of paper.

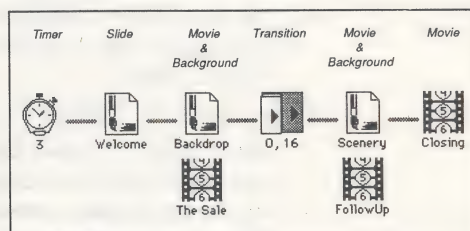
Save as File – Saves the requested pages to disk as a file in MacPaint or PICT format for later editing. If you want to create a storyboard with annotation next to the slides, you could easily edit these files and drop in the text.

Layout Options – Opens the Layout Options dialog box described next.

Cancel – Closes the dialog box without printing.



Printing a Slide



Printing an Overview window

Layout Options

When you select Layout Options in the Print dialog box, the Layout Options dialog box appears. Select the options you want. When you choose Print Page Footer, type in the text that you want to appear at the bottom of each page. Below are examples of different layouts:

Page Options

☒ Print Page Header (filename & date)

☐ Print Page Footer:

VideoWorks II

Frame Printing Options

☐ Print frame around border

☐ Single column format

☐ Registration marks (with full sized image)

☒ Include frame number

Scale

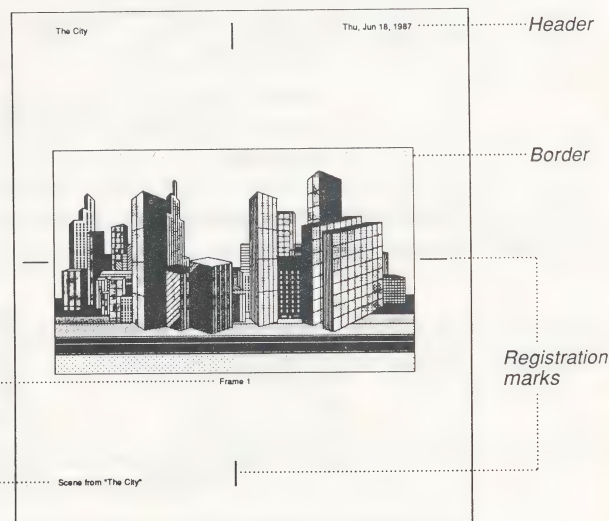
☒ Full size ☐ 50% size ☐ 25% size

OK Cancel

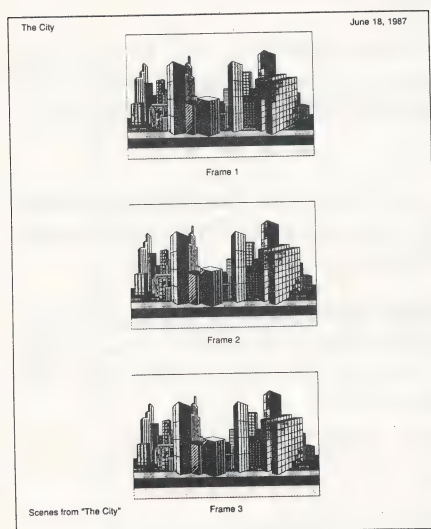
Layout Options Dialog Box

Frame number

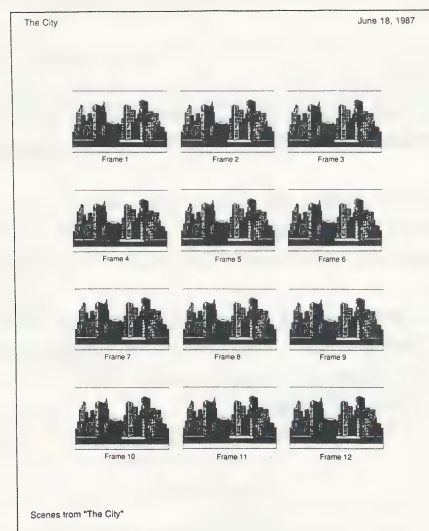
Footer



Full-size



50% with single column format



25%

How to Launch Applications from Overview

The Launch Editor command in Overview provides a way to get directly from Overview into another application, such as VideoWorks, MacPaint or MacDraw. This is a shortcut for having to quit VideoWorks and open the application from the Finder.

For example, if you have a MacPaint document you want to modify, just select it and choose Launch Editor from the File menu. MacPaint is launched, and that document opens. When you Save and Quit, you are returned to Overview, exactly as you left it (except the MacPaint document is now updated).

Note: Of course, you must have the application that you want to launch (MacPaint, MacDraw, etc.) available on a drive in your system.

Here is the detailed procedure for launching an application from Overview:

1. At the Overview window, select the document you want to launch:

<u>If you select:</u>	<u>This application will be launched:</u>
VideoWorks document	VideoWorks
MacPaint document	MacPaint (or choice in Preferences)
PICT document	MacDraw (or choice in Preferences)
Glue document	Glue Viewer
Overview document	Overview

2. Choose **Launch Editor** from the File menu.

Overview is suspended, the application is launched, and the document you selected opens up. At this point you can modify your document. When done, you can return to Overview to continue where you left off.

3. To return to Overview, Save the document and Quit the application. For example, if you were in MacPaint, you would choose Save and then Quit. (If you were in VideoWorks, you can choose either Quit, or choose To Overview.)

Launching a New VideoWorks Document – You can launch a new VideoWorks document from Overview, as described earlier in "How to Annotate a Slide." There is no direct way to launch a new MacPaint or MacDraw document. However, you can launch an existing one to get into the application quickly.

Launching an Overview Document - Notice you can launch an Overview document from Overview (in fact, you can do this five levels deep). To return to the Overview you were working on, select "Return To Overview" from the file menu.

Launching Applications Other Than MacPaint and MacDraw - If you want to use other programs that edit these documents, choose Preferences from the Control menu. You can then enter the "creator type" of the application. Here are the creator types for some common programs:

<u>Application</u>	<u>Creator Type</u>
CricketDraw	CRDW
FullPaint	PANT
GraphicWorks	MMCB
MacPaint	MPNT
MacDraft	MACD
MacDraw	MDRW
SuperPaint	SPNT

To determine creator type for programs not listed above, use a utility program like FEdit or ResEdit. For example, in ResEdit the creator type is listed in the "Get Info" window you can get after clicking on the applications name.

Moving Between Overview and VideoWorks

Normally, when creating an Overview presentation, you stay in Overview and launch into VideoWorks whenever you need to (using the Launch Editor command). If your work is strictly within VideoWorks and has nothing to do with Overview, it would be smarter just to close Overview and go into VideoWorks (using the To VideoWorks command).

Thus, these two commands serve different purposes:

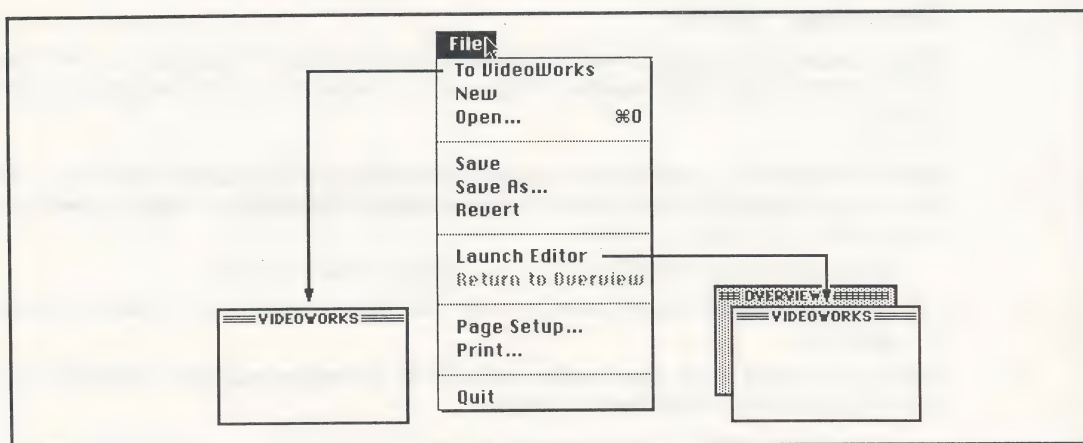
- **Launch Editor** – Leaves the Overview document open, with the current slide visible as the background. When you quit VideoWorks, you return to Overview just as you left it.
- **To VideoWorks** – If you choose To VideoWorks, *the Overview document closes*, then VideoWorks opens. When you go back to Overview, a new blank Overview document is displayed.

These two methods are illustrated below. When you start in Overview and use Launch Editor to enter VideoWorks, Overview is suspended – it is shown shaded below in the diagram. When you Quit VideoWorks, it is re-activated.

When you start in Overview and use To VideoWorks to enter VideoWorks, Overview is closed. If you were to Quit VideoWorks, you would be sent to the Finder.

To summarize:

Use:	For:
Launch VideoWorks	When you are in Overview and want to edit a VideoWorks document
To VideoWorks	If you want to start working on a VideoWorks document not associated with any Overview document (opening the VideoWorks document has the same effect).



To VideoWorks (left) closes the Overview document and runs VideoWorks as a stand-alone application. **Launch Editor** (right) runs VideoWorks, and leaves the Overview document open in the background.

Limits on the Number of Clip Animations *

You can have no more than 16 clip animations in a single column of icons. But there is another limitation that you can run into with only 3 or 4 clip animations:

The concept of *Animation Channels* comes from the Score in the VideoWorks side of VIDEOWORKS II. Generally you won't need to think about this when using Overview, but you should know about it because it *limits the number of clip animations* you can have in the same column.

You need a separate animation channel for each separate piece of artwork appearing on the Stage. You can have a maximum of 24 separate pieces of artwork on the Stage *at the same time* (you can have up to 512 pieces of artwork in a VideoWorks document)

Suppose you have three clip animations A, B, and C and they use the following numbers of channels:

VideoWorks A	3 channels
VideoWorks B	1 channel
VideoWorks C	20 channels

You could play all three of these documents at the same time, because they need a total of 24 channels. However, you could not add in a fourth VideoWorks document, because all 24 channels are in use. If you did add another VideoWorks document, it would simply not appear.

Typically, a simple clip animation uses only 1 channel. More complex clip animations may use as many as 4 or 8 channels. Therefore you can generally combine 3 or 4 clip animations on the same slide without ever running out of animation channels.

You *can* run into this problem if you add clip animation to an existing VideoWorks movie which itself uses most of the 24 channels. Most VideoWorks movies use between 5 and 15 animation channels.

If you want to find out how many animation channels a particular VideoWorks movie or clip animation is using, you can open the movie and look at the Channel Indicator in the Panel. See the VideoWorks Reference section for more details.

Overview Hints

When you are ready to give your presentation, you can select Stage from the Window menu and use the mouse like a slide projector remote control (actually lift it off the table) to step from slide to slide.

Sometimes you may want a slide to appear motionless while you talk about it to your audience, and then to emphasize your point you want a dramatic animation to appear over that slide. You can do this in Overview as follows:

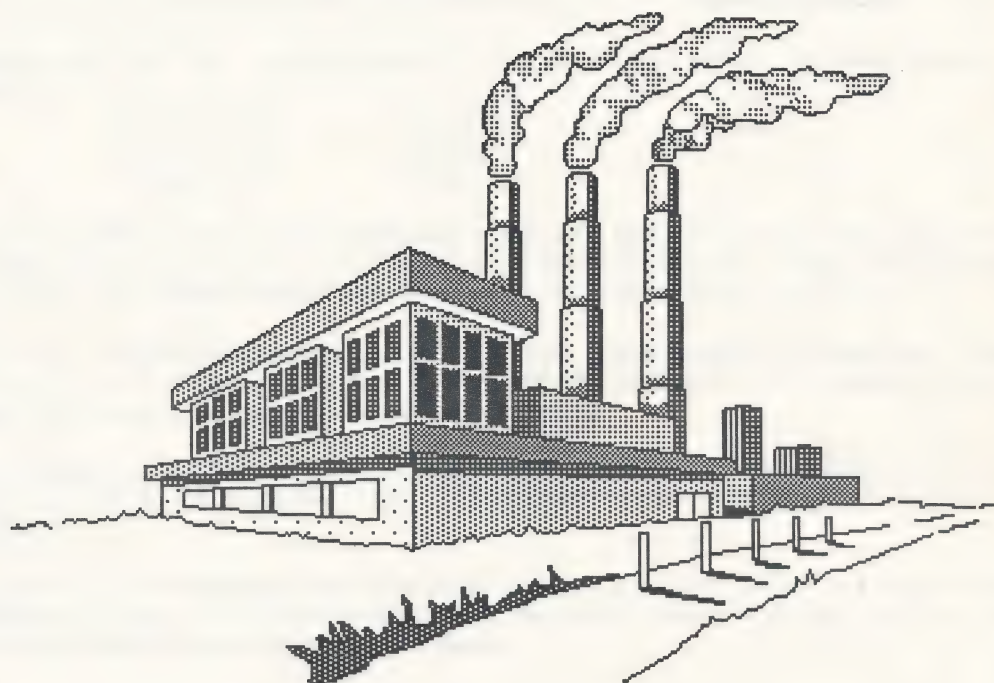
- Have your background slide in two successive columns of icons.
- The first column would have no clip animation, and second column would have clip animation.

Then you can step to the first column, and talk for as long as you like. When you are ready, just click the mouse and watch fireworks happen.

For certain animations, you will want the first frame of the clip animation to appear during that first motionless slide, but still have the animation occur when you press the mouse button. To do this:

- Make a duplicate of the column of icons (use the option key to duplicate the icons)
- Use Get Info to set the clip animation in the first column to a very large delay (like 99 seconds), and to appear before the movie starts.
- The second column should be the same as the first, but will have no delay.

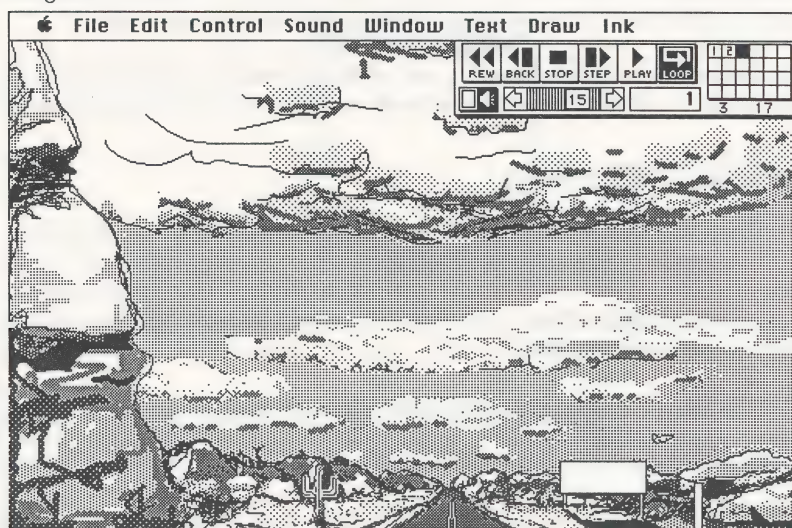
Then you can step to the first column, and talk for up to 99 seconds. When you are ready, just click the mouse and the animation begins. Try this technique on the last column in *"Tutorial #3 – More Bamboo Industries"*. The last column is the one with the Easel clip animation over a MacDraw document.



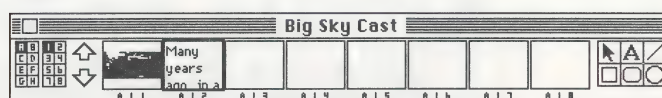
VideoWorks

The Animation Side of VIDEOWORKS II

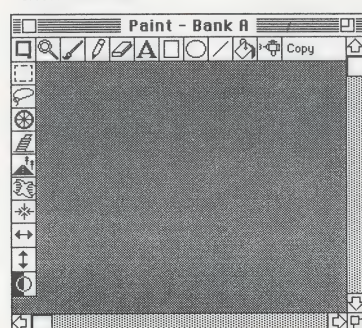
Stage



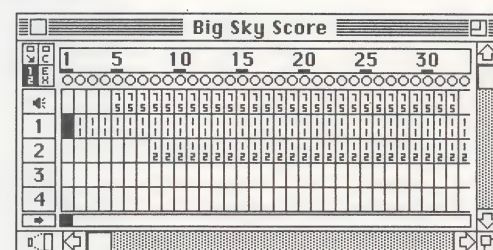
Cast



Paint Window



Score



The previous section covered Overview, the first step in the process of animating with VIDEOWORKS II. This part describes VideoWorks, which is steps 2 through 13 in the process.

2. Creating Artwork

This section describes how to create artwork in the Paint window, which you can then use in your animations. You can also draw simple shapes directly on the Stage with the QuickDraw shapes, which are described later in "Adding QuickDraw Shapes".

You also have the option of creating artwork in another program and importing it into VideoWorks via Art Grabber+, the Clipboard or the Scrapbook (see "Importing Art"). You can import digitized artwork, scanned artwork, clip art or clip animation.

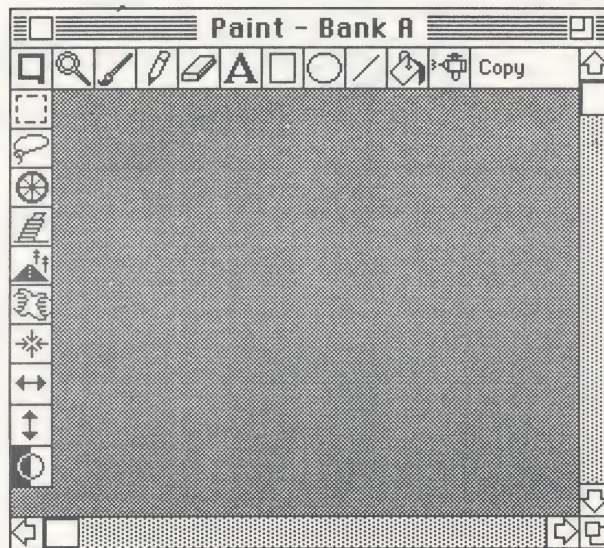
The Paint window and the Cast are intimately related. Every easel in the Paint window is a castmember. When you modify artwork on an easel, the castmember in the Cast changes.

Using the Paint Window

The Paint window is the main place you create artwork in VideoWorks. The Paint window is a paint program very much like MacPaint. The drawing tools are in a row along the top of the Paint window. These are used to generate artwork. The editing tools are along the left edge and are used to modify artwork. For further description of the Paint window, refer to the Reference section later in this manual.

You can draw freehand with the Pencil, Paintbrush or Airbrush. You can draw rectangles, ovals, straight lines, and fill patterns. Once you have draw something, you can flip it vertically, flop it horizontally, invert the black and white, rotate it, slant it, distort it, or change its perspective.

Other tools allow you to get a new easel, change the patterns and inks, type text and change the Paintbrush size, and go into Fatbits.

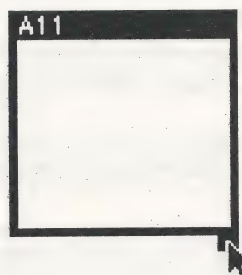


The Paint Window

How to Create Artwork in the Paint Window

To create artwork in the Paint window:

1. Open the Paint window.
2. Click on New Easel . The castmember number for that artwork (such as A11) appears at the top of the easel.
3. Pull the easel open by dragging its handle down and to the right.



4. Select a drawing tool and draw with it – pick any tool along the top row: the Paintbrush, Pencil, Airbrush, Line, Rectangle, Circle, or Paint Bucket. You can also select the text tool and type in text.
 - For a Line, select a line thickness from the Draw menu.
 - For the Paintbrush, Rectangle or Circle, select a pattern and line thickness from the Draw menu.
 - For another Paintbrush shape, double-click on the Paintbrush and select a shape from the Paintbrush palette.
 - Fill in patterns with the Paint Bucket.
 - Cut, copy and paste artwork using the Lasso or Selection Box.
 - Use Slant, Rotate, Perspective or Distort to modify artwork.
 - Using inks to modify how patterns paint over existing art.
 - Use Fatbits to enlarge a painting to work on individual pixels

A miniature replica of the artwork you produced appears in the first empty position in the Cast as you draw it. Note that each Paint easel corresponds to a different Cast position.

Some general rules apply:

- You can select an easel to work on by clicking on it (or finding and clicking on it in the Cast, which also brings it to the top).
- You can drag an easel to another location in the Paint window by moving the tip of the pointer to the top edge of the black easel and dragging the easel.
- You can create a background much larger than the Macintosh screen – it can be 5 feet wide and 2 feet tall, if you want. This is useful for making a background that you can scroll during the animation, to show motion. You do this by pulling an easel open as far as it will go, sliding the easel to the left, pulling it open some more, sliding it to the left, and so on.
- You can Cut and Paste between Paint easels by selecting the artwork with the Selection Box or Lasso, choosing **Copy Graphic** or **Cut Graphic** from the Edit menu, clicking where you want it to go, and choosing **Paste Graphic**.
- You can create up to 512 pieces of art in one VideoWorks document (see the Cast, below).

To modify existing artwork, simply open up the Paint window, locate the art, and use the Paint tools to modify it.

Shortcut: To open the Paint window quickly from the Stage, double-click on a piece of Paint artwork on the Stage. The Paint window opens immediately, with the piece of artwork on top. (However, that piece of artwork may not be visible – you may have to scroll the Paint window to see it.)

When searching for artwork in the Paint window, be aware that the Paint window does not necessarily display *all* of the castmembers in the Cast at the same time. It displays only those currently of interest:

- The castmember that is currently selected in the Cast, and
- The current bank of castmembers (A through H). The current bank is displayed in the title bar at the top of the Paint window. (Banks are described next under "Using the Cast").

Thus, if you cannot find a piece of art, the easiest way to locate it in Paint is to use the shortcut described above – find it in the movie, then double-click on it on the Stage.

All artwork on the Stage has implicit *registration*. If you want to accentuate a motion or re-locate artwork slightly on the Stage, you can do so by altering the registration of that artwork with the Registration Point tool in the Paint window. (See Advanced Editing.)

Changing the Ink for Painting

Inks modify the way the patterns in the Draw menu paint over existing artwork.

Note: Inks are also used in a completely different context – on the Stage. For more details, see "Using Inks" later in "How to Animate."

Starting with artwork already on a Paint easel:

1. Choose the ink you want from the Ink menu. You should see the name of the ink you selected appear in at the top right corner of the Paint window. (If it does not appear, click on the easel to make sure it is active.)
2. Choose the pattern you want from the Draw menu. (This can be done before or after step 1.)

You can now paint with any of the paint tools: Paintbrush, Airbrush, Paint Bucket or filled shapes.

Using the Cast

The Cast holds all of the artwork in VideoWorks. You can think of it as the database manager for artwork and text in VideoWorks. You then use the Paint window to create or modify the artwork. Thus, each easel in the Paint window has a corresponding position in the Cast, as indicated by the Cast number. For example, the first Paint easel you create is numbered A11 both in the Paint window and in the Cast.

Cast Positions – The Cast displays eight pieces of art, or positions, at any one time. You can scroll through all of the castmembers with the up and down arrows at the left end of the Cast.

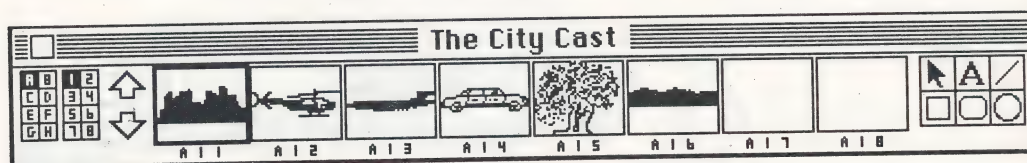
When you click on a position in the Cast window to select it, the corresponding easel in the Paint window appears in front of all other easels.

You can create up to 512 pieces of art in one VideoWorks document, all of which appear in the Cast. ($512 = 8 \times 8 \times 8$. Eight banks, A-H, each with eight rows, with eight positions to a row).

Banks – At the left end of the Cast are the bank indicators, A-H. Each bank holds 64 castmembers. You can select a bank by clicking on the bank indicator or pressing one of the castmember scroll arrows. One bank is displayed at a time in the Paint window. The purpose of banks is to keep the number of pieces of art available to be worked on at a time to a manageable size.

Scroll Arrows – The up and down arrows at the left end of the Cast allow you to scroll through the Cast, viewing all of the castmembers.

At the right end of the Cast are the QuickDraw shapes and the Text Box. For more information, refer to "Using QuickDraw Shapes" and "Using Text" later in "How to Animate."



The Cast

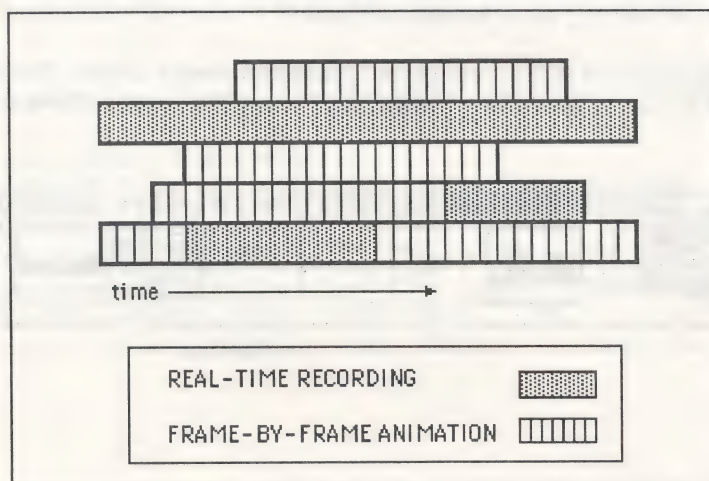
3. Creating an Animation

There are two different methods for creating an animation. You can use either method at any time – pick whichever method is appropriate at the moment:

- **Real-Time Recording** is the process of recording the motion of an object as you move it around on the screen. The object cannot change shape or size as it moves. You create this animation all at once, in real-time, rather than frame-by-frame. The result is an animation that is characteristically smooth and continuous. A major benefit is that it is quick and easy to make a Real-Time Recording.
- **Frame-by-Frame Animation** is the main way you interact with animations. This is the process of animating one frame at a time, placing and arranging artwork on the Stage, using In-Between, and doing precise editing. It requires more work than Real-Time Recording, but the benefits are greater precision, control and variety.

In both cases, the recording goes into a window we call the Score. The following diagram graphically illustrates the differences between these types of recordings. This is an abstract representation of the Score – when you look in the Score you can't actually tell which sequences have been recorded in real-time or frame-by-frame.

Remember that you can switch techniques at any time in a single animation, using each technique whenever appropriate.



An animation can combine Real-Time and Frame-by-Frame techniques. Real-Time Recording is continuous recording, while Frame-by-Frame Animation is discrete.

Use Real-Time Recording if you want to record a piece of art moving around on the Stage. Use Frame-by-Frame Animation in all other cases – that is:

- To create a sequence composed of different pieces of art.
- To create artwork or text that moves smoothly in a straight line on the Stage (In-Between).
- To precisely edit the animation: Stretching, switching, copying or moving artwork. Inserting or deleting frames or channels.
- To add ink, sounds, Macintalk speech, transitions or tempo changes.

One advantage of Real-Time Recording is that you can add Film Loops. (We'll describe this in a later section.)

Real-Time Recording

REAL-TIME RECORDING



FRAME-BY-FRAME ANIMATION

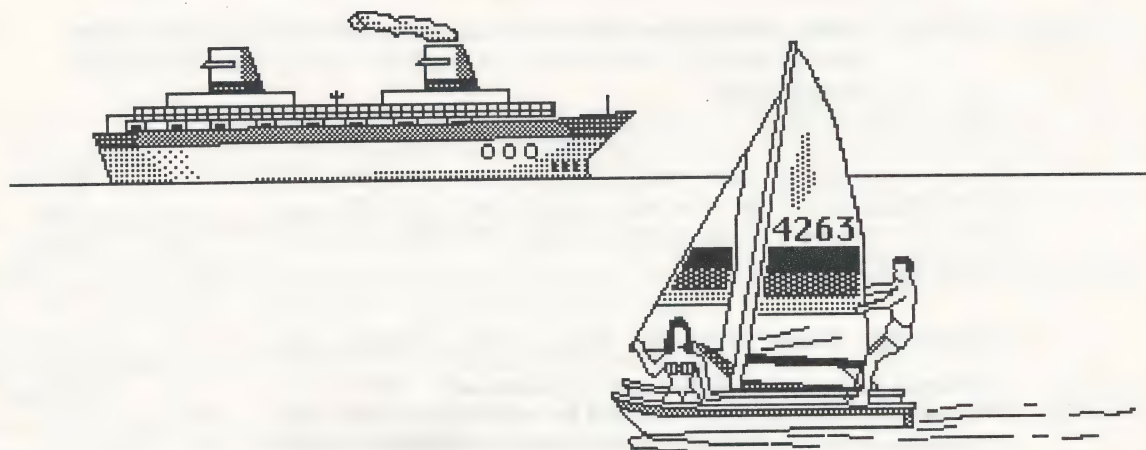


What do we mean by Real-Time Recording? As we mentioned before, **Real-Time Recording** is the process of recording the motion of artwork as you move it around on the screen. It is quick and easy – basically, you just select a channel, select the artwork in the Cast, hold down the Option and Command keys, and press the mouse button to drag the artwork around the Stage. All of your movements will be recorded until you release the mouse button. If you're not satisfied with the animation you created, Undo and try again.

Real-Time Recording is restricted to one piece of artwork – that is, the artwork cannot change shape or size as it moves (unless you use Film Loops). You create this animation all at once, in real-time, rather than frame-by-frame. The result is an animation that is smooth and continuous.

A **Film Loop** is a *sequence* of art saved to one position in the Cast. It could be a bird flapping its wings or the earth spinning. It can have a dramatic effect on the impact of your animation. (For more information, Film Loops are described later.)

Examples of Real-Time Recording are given in Tutorial #4 - Bouncing Face, and Tutorial #5 - The City. An example of using a Film Loop is given in Tutorial #6 - The Frogs.



How to Animate Using Real-Time Recording (Option-⌘ Key Combination)

This procedure assumes your VideoWorks document already has artwork that you want to animate in the Cast. It works whether your animation is stopped or is playing.

If you want to start at a particular spot in an existing movie, move to the frame where you want to begin the Real-Time Recording. Use Step and Back Step to move to the exact frame.

1. In the Cast window, select the castmember you want to animate by clicking on it. (The castmember becomes highlighted by a dark outline around its border.) Do *not* drag the castmember out onto the Stage. Close the Cast window if it will be in the way of the animation.

Note: In the next step, the recording will begin as soon as you click the mouse, so be prepared to begin moving the mouse as soon as you press the mouse button.

2. Hold the **Option** and **Command** keys down. Press and hold down the mouse button, and begin moving the artwork around – all your actions are being recorded. When you are done animating, release the mouse button to stop recording.

Note: Once you begin animating, you can release the Option and Command keys and continue recording.

If you don't like the animation, you can Undo it and try again. You can keep adding animations using this procedure until all 24 channels are filled.

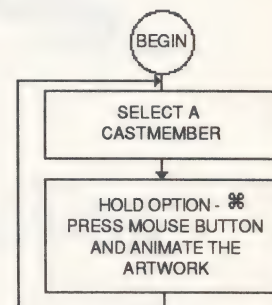
Note: A way to get more control is to turn down the speed and record the animation in slow motion. For playback, turn the movie back up to normal speed.

Since the animation starts recording the moment you press the mouse button down, for some animations it may work best to get a running start by moving the mouse *just before* you press the mouse button.

Channel Selection in Real-Time Recording

When you hold down the Option and Command keys, VideoWorks automatically finds an unused channel for you to record into. You can see this by just holding down the Option and Command keys – the channel that VideoWorks chooses starts flashing in the Panel's Channel Indicator. To choose another channel, keep holding down the Option and Command keys and just click on the one you want in the Channel Indicator – it will start flashing. Then begin Real-Time Recording.

Most of the time, letting VideoWorks choose the next channel is exactly what you want. However, there are cases when you want to override that choice, as we just described. For example, since channel assignment determines what is in the foreground or background, you might want to assign the next piece of art to a lower channel number so that it moves behind another image. Or, you might want to record over a channel that has already been used for animation.



*The Process of
Real-Time Animation*

Frame-by-Frame Animation

REAL-TIME RECORDING

FRAME-BY-FRAME ANIMATION



Frame-by-Frame Animation is the main way you interact with animations. This is the process of animating one frame at a time, placing and arranging artwork on the Stage, using In-Between, and doing precise editing. It requires more work than Real-Time Recording, but the benefits are much greater precision, control and variety.

Note: Refer to the next section "Controlling an Animation" if you need to become familiar with the Panel controls and Channel Indicator.

How to Animate a Sequence Frame-by-Frame

This procedure describes how to create a sequence Frame-by-Frame. You can use this procedure either to create a new sequence or to add to an existing one. Refer to the flowchart on the next page for a quick view of this procedure.

First get the individual pieces of artwork for the sequence into the Cast either by drawing them in Paint or grabbing them with Art Grabber+. Then:

1. If you are adding to an *existing* animation, move to the frame where you want to start the new sequence.

You can either use the controls on the Panel, drag the Frame Counter number, or drag the Playback Head in the Score.

2. (Optional) If you want to specify a channel to record in, select that channel number at the Channel Indicator in the Panel (or select it in the Score).

If you do not specify a channel, the next available empty channel is automatically selected for you in the next step.

Note: When selecting a channel, use channel 1 for background art and larger channel numbers for foreground art. See "Foreground Priority" which follows.

3. Drag the first castmember onto the Stage.

Notice the Channel Indicator for this channel now looks like a bullseye (a circle). This is the record light, indicating the channel is "ready to record."

4. Click on the **Step** button. This copies the art to the next frame.
5. If you want a new piece of art for the second frame, click on the second piece of art in the Cast and choose **Switch Castmember** from the Edit menu.

Shortcut: In place of step 5, double-click on the second piece of art in the Cast.

6. Re-position the new piece of art on the Stage so that it is positioned correctly in the sequence (or skip this step if you want it to remain stationary).
7. Repeat steps 4 through 6 for the remaining artwork.

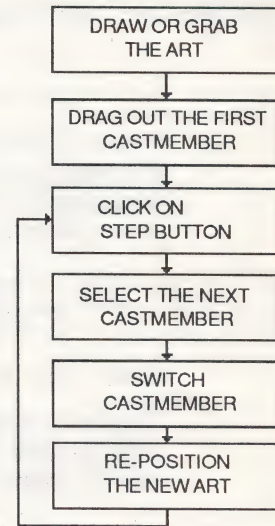
You can now play this sequence. This procedure can be used for walking, jumping, galloping, flying – any kind of sequenced animation. This procedure is also used in Tutorial #6 - The Frogs.

Animating art that is already on Stage. As a variation of the previous procedure, you can create a sequence starting with artwork that is already on Stage (rather than dragging out new artwork). To do this, play the movie and stop at the frame that contains the artwork where you want to begin recording. Then:

Hold the **Option** key down and **click** on the artwork (to turn on the record light).

This makes a gray border appear around the artwork and the record light turn on for that channel (in the Channel Indicator). Now you can continue with step 4 to 6 of the above procedure.

An equivalent way to turn on the record light is to press the Option key and click in the Channel Indicator at the appropriate channel. Option-click is a toggle, which means that you can use Option-click to turn on the record light, and use Option-click again to turn it off. Record lights are described further in the next section "Controlling an Animation."

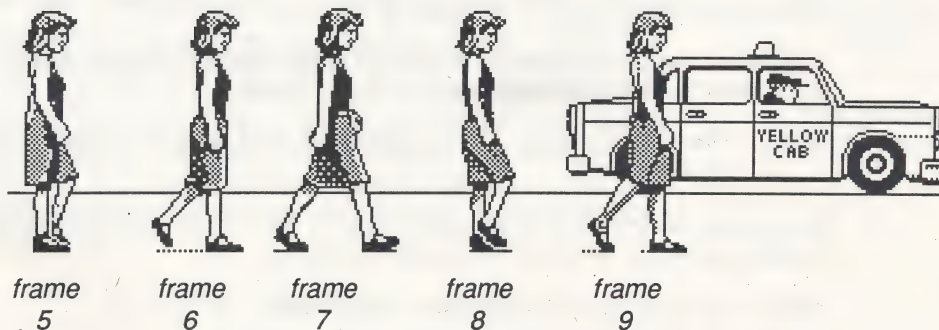


The Process of Frame-by-Frame Animation

Animating one piece of art frame-by-frame. If you want to record just *one* piece of art (either standing still or moving around on the Stage), use the previous procedure but skip step 5.

Foreground Priority

If two pieces of art cross paths on the Stage, the artwork in the higher channel will appear *in front* of the other artwork. Thus, artwork in channel 2 will appear in front of artwork in channel 1. VideoWorks uses channel numbers to indicate priority – the higher the channel number, the higher the foreground priority. When performing the previous procedure, if you know beforehand that you want a piece of artwork to be in front of all other artwork, click on a higher channel number in the channel indicator before dragging the artwork out onto the Stage. You can always change this priority later – refer to the procedure "How to Change Foreground Priority" in "How to Animate."



Registration Points Make Animation Easier

If you think about some typical motions for a moment, you will realize that many of them have an "anchor point" which is not always the geometric center of the objects. For example, swinging your arm in a circle around your shoulder - not around its center (the elbow). Other motions have a fixed reference to the rest of the world - for example a frog jumping in place has a fixed shadow. You can often make use of these aspects of motion in VideoWorks by using Registration Points.

Registration Points are set in the Paint window by a very simple procedure. Essentially you just select the Registration Point tool and then click on the spot in the piece of art that should be the Registration Point.

When you choose the Switch Castmember command, VideoWorks will do the following:

- Determine where the registration point of the previous castmember is on the screen; and
- Position the new castmember so that its Registration Point fits on top of where the previous Registration Point was.

The default Registration Point (if you don't set it yourself) is the object's center.

Imagine that you are animating an arm rotating around a shoulder as a sequence of 5 castmembers (that is the arm is at 90°, 45°, 0°, etc.):

- Without using Registration Points, each time you gave the Switch Castmembers command, the arm would rotate about its center - the elbow. So the shoulder would not line up with where the shoulder was in the previous frame, and you would have to move it to line it up.
- With Registration Points on the shoulder of each arm, the arm is perfectly aligned after each Switch Castmember because it lines up each succeeding arm at the shoulder.

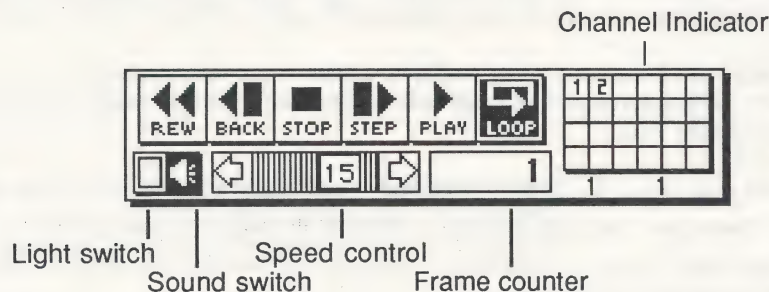
Note that Registration Points are useful even if the shoulder is not stationary. Suppose the shoulder is moving from left to right at a constant speed, with the arm rotating around it. Then after each Switch Castmember you can move the arm the same distance (for example, by using the Tweak window).

One excellent way to set Registration Points is to use Repeat Selection (in the Control menu) to repeat the sequence. Then you can change the registration points in the Paint window, and immediately see the effect on the motion.

For more information on Registration Points, see "Paint Window" in "VideoWorks Reference," "How to Set a Registration Point" in the "Advanced Animation" section, and "Using Film Loops" in "How to Animate."

4. Controlling an Animation

This section describes how to control a VideoWorks movie. (Controlling an Overview document is described earlier in "Working with Overview.")



Panel

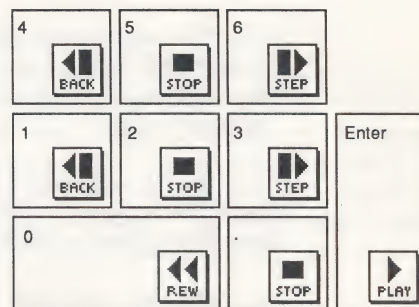
At the Panel you can play or stop the animation, step one frame at a time either forward or backward, and rewind to the beginning. You can also change the speed, turn the sound and lights on or off, and make the movie loop. The individual controls are described under Panel in the "Windows" section of the Overview Reference. All of the controls described under Panel are duplicated in the Control menu.

Numeric Keypad

If your Macintosh has a numeric keypad, you can also control VideoWorks from it.

Light and Sound Switches

You can switch off the white background and make it black by clicking on the Light Switch. When you do this, some of the artwork may appear surrounded by white boxes. To remove these boxes, apply inks to the artwork. (See "Using Inks".) Click on the sound switch to turn the sound on or off. To adjust the volume, use the Control Panel desk accessory.



Channel Indicator

This is the 24-channel grid at the right-hand side of the Panel. It indicates which of the 24 channels are occupied:

- A number means the channel is occupied
- A record light means the channel is occupied and ready to record frame-by-frame
- A blank square means the channel is empty

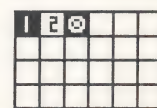
In any of these three cases, if the cell is highlighted black, that indicates the channel is selected.



All 24 channels



Record light in channel 3



Channels 1 and 3 selected

The Channel Indicator also serves as a channel selector: Clicking on a square selects that channel. When you select a square with a number in it, the corresponding artwork on the Stage is selected. This is useful for selecting an object that is behind another one, so that you can re-position it on Stage. You can select more than one channel at a time by holding down the Shift key while clicking the squares.

When you are Real-Time recording, the Channel Indicator for the channel you are about to record into *flashes*. You can override this choice of channel by clicking on another Channel Indicator while holding down the Option and Command keys (see Real-Time Recording).

Using the Record Lights

The previous illustration shows a record light in the Channel Indicator at channel 3. The record light means that channel is "ready to record."

In the earlier procedure "How to Animate a Sequence Frame-by-Frame," the record light automatically turns on when the artwork is dragged out. Thereafter, each time you hit Step, the animation steps to the next frame and the artwork in that channel is carried along, overriding what may have previously been in that channel. Once you hit Play, any record lights turn off.

Once artwork is on the Stage, to turn its record light on (or off):

- Hold down the **Option** key and **click** either on artwork on the Stage or on a channel in the Channel Indicator

By using the Option-click method on artwork on the Stage, you can select as many pieces of artwork as you want and record them as a group. When a record light is turned on, and artwork is selected, it will be highlighted with a heavier border, as shown on the far right.



Artwork not selected

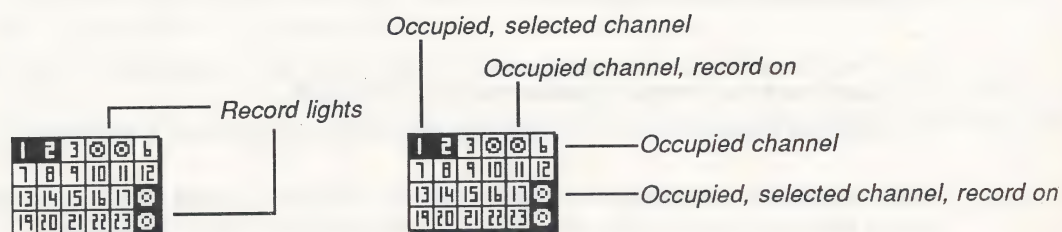


Artwork selected



Artwork ready-to-record and selected

Record Lights are circles that appear in the Channel Indicator to indicate you are "ready to record" frame-by-frame in that channel. The record light indicates that if you Step, the artwork in that channel will be copied to the next channel.



There are three ways to set the record light on for a specific channel. The last method also allows you to turn a record light *off*.

- Drag out a castmember onto the Stage
- Select a castmember, then choose Place On Stage from the Edit menu (or press Command-T).
- Hold down Option and click on artwork on the Stage or on its channel in the Channel Indicator

5. Editing an Animation

This section contains three parts:

- Editing Artwork on Stage (Score Closed)
- Basic Editing in the Score
- Intermediate Editing in the Score

The first part describes how to edit directly on the Stage, without the use of the Score at all. The next two parts describe editing using the Score, which allows you to edit more than one frame at a time.

Editing Artwork on Stage (Score Closed)

When editing artwork on the Stage, you are limited to working only on the currently displayed frame. This is useful for isolated changes in a movie. To edit entire sequences, you must work in the Score.

You can do the following on the Stage:

- Place and remove artwork
- Re-position artwork (including tweak)
- Stretch artwork
- Switch artwork on the Stage with other artwork in the Cast
- Change the ink assigned to artwork
- Insert and delete frames

In order to do some of these things, you must first select the artwork, so selecting artwork is also described here. Inserting and deleting frames is described later under Basic Editing in the Score.

How to Place Artwork on the Stage

The Stage is a special kind of window. Unlike the Cast, Score, Paint and Text windows, you cannot Cut and Paste directly on the Stage. We have the special command Place On Stage to place artwork and Blank From Stage to remove it.

To place artwork on the Stage:

1. If you are adding to an existing animation, first make sure the animation is at the frame where you want the artwork to appear. Use the Panel controls.
2. Drag the castmember out from the Cast and place it on the Stage, at the position you want.

The castmember is now added to this one frame. To place artwork in the next frame, use the special procedure "How to Animate a Sequence Frame-by-Frame" described earlier.

Note: Another way to place artwork is with the Place On Stage command in the Edit menu. Refer to "Other Ways to Place Artwork." in the "Advanced Editing" section.

How to Remove Artwork from the Stage

(Blank From Stage Command)

Use this procedure to remove one or more pieces of art directly from the Stage (that is, without opening the Score).

1. Click on the artwork on the Stage.
2. Select **Blank From Stage** from the Edit menu.

Shortcut: Press the **Backspace** key instead of Blank From Stage.

The selected artwork is removed, without affecting the rest of the animation. Using this procedure, you can step through the animation and remove the unwanted artwork one frame at a time.

Note: To remove more than one piece of artwork at a time, **Shift-click** on each piece of artwork you want to remove, then select Blank From Stage.

The Blank From Stage command in step 2 removes the artwork and empties the corresponding cell(s) in the Score. Unlike Delete Frame, the cell itself is not deleted – it appears blank in the Score. Like all cut and delete operations, you can recover the artwork by using Undo immediately.

You can remove all of the artwork in a series of frames in one stroke by opening the Score, selecting the cells and using Blank From Stage. The procedure for this follows later under "How to Clear Cells from the Score."

How to Select Artwork on the Stage

In order to stretch, switch, tweak, remove, or change the ink of artwork on the Stage, you must first select that artwork. To select artwork on the Stage:

To select:	Do this:
One piece of artwork	Click on the artwork.
Additional pieces of artwork	Shift-click on each piece of artwork. That is, press and hold down the Shift key and click on each piece of artwork to be selected.

A dotted rectangle appears around each piece of artwork to indicate it is selected. (In the Score, each corresponding cell is selected black.)

Whenever you click on the Stage, the artwork is selected only at the *current frame*. If you were to look in the Score, you would see that this selected artwork is in the same frame as the Playback Head.

How to Re-Position Artwork on the Stage

To move artwork to a new position on the Stage:

1. Move the pointer onto the artwork.
2. Press and hold the mouse button down, drag the artwork to its new position, and release the button.

To move more than one piece of artwork on the Stage in one movement, select each piece you want to re-position (with Shift-click), then drag all the artwork as a group. You can move an entire sequence or channel as well by first selecting those cells in the Score (described in "How to Re-Position a Sequence of Art" later in "How to Animate.")

How to Constrain the Positioning of Artwork (Shift Key)

Constrain means to limit the motion of artwork to either horizontal or vertical movements. When you are positioning an object on Stage, to constrain its motion:

1. Press and hold the **Shift** key.
2. **Drag** the object the Stage up, down, left or right. The object will be constrained to the direction you begin moving it.

(Once you begin dragging, you can release the Shift key – the motion will continue to be constrained as long as you hold the mouse button down.)

Constrain works in two windows: Stage and Paint:

- Artwork on the Stage
- Artwork in Paint that is selected with the Selection Box

You can use Constrain with In-Between to create scrolling text. See "How to Create Scrolling Text" in Advanced Animation Techniques, later.

How to Stretch Artwork on the Stage

You can stretch any piece of artwork directly on the Stage. Paint artwork tends to distort slightly as its size is changed, because their patterns change size. You can stretch any QuickDraw shape, but you will notice that its fill pattern doesn't stretch along with its shape like with Paint artwork.

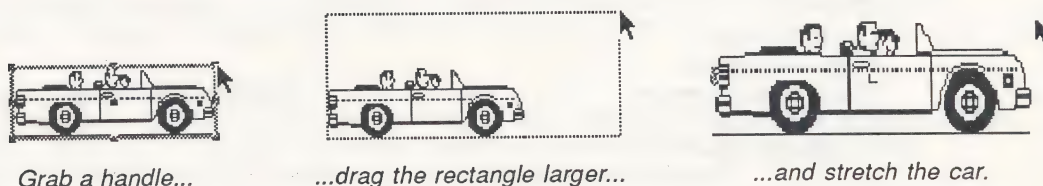
To stretch artwork on the Stage:

1. Click on the artwork. Eight handles (small black boxes) appear – as shown below.
2. Move the pointer onto a handle and drag to make the artwork stretch or shrink. Release the button when the artwork is the size you want.

The handles are small, so you must be careful to place the *tip* of the pointer at the center of the handle. Pick a side handle to stretch the width, a top or bottom handle to stretch the height, and a corner handle to do both.

Note: To re-size artwork *without altering its proportions*, press and hold the **Shift** key and then drag a corner handle. To return artwork to its original size, choose **Normal Size** from the Edit menu.

You can create a sequence of artwork that *stretches as it moves* with the procedure "How to Make Artwork Stretch as it Moves" later in this section. This technique uses In-Betweening.



How to Switch One Piece of Art on Stage with Another in the Cast

(Switch Castmember Command)

This procedure describes how to replace a piece of artwork on Stage with a piece of artwork in the Cast.

1. Click on the artwork on Stage to select it – a box appears around it.
2. Click on the artwork (castmember) in the Cast – a heavy border appears around it.
3. Choose Switch Castmember from the Edit menu.

The artwork on Stage is replaced by the artwork in the Cast.

Shortcut: Instead of performing Steps 2 and 3, double-click on the castmember in the Cast.

You can switch *multiple* pieces of artwork on the Stage with one piece of artwork in the Cast. Using the previous procedure, in place of step 1 use Shift-click to select as many pieces of artwork on the Stage as you want. Then perform steps 2 and 3.

One application of the Switch Castmember command is illustrated in Tutorial #6 - The Frogs.

A MINI-TUTORIAL

The Principle of "Selecting and Choosing"

Whenever you edit in VideoWorks, you use a basic two-step principle over and over again: First you tell VideoWorks what you want to work on by selecting it, then tell it what you want to do, by choosing a command.

For example, to remove artwork on the Stage, you simply select that artwork by clicking on it, then choosing Blank From Stage from the Edit menu. Once you get the knack of selecting and choosing, editing becomes more intuitive.

In general, the two-step process is:

1. You select something:

Artwork (on Stage, in Paint or in the Cast)
Text
Cells (in the Score)

2. You choose a command:

Tweak
Clear
Cut and Paste
Copy and Paste
Switch Castmember
Change its ink
Re-position it

Example #1

One of the simplest cases is removing several pieces of artwork from the Stage:

1. Select as many pieces of artwork on Stage as you want: **Click** on the first piece and **Shift-click** on subsequent pieces.
2. Remove the artwork from the Stage by choosing **Blank From Stage** from the Edit menu.

Example #2

However, the principle becomes much broader when you apply it to an entire sequence, frame or channel in the Score. A classic example is re-positioning an *entire* sequence of a man walking. The two steps are:

1. Open up the Score and select the entire Walking Man sequence. This should cause one piece of artwork to become selected on the Stage.
2. Re-position the selected piece of artwork on the Stage.

Step 2 re-positions the *entire* sequence, because the entire sequence was selected. All selected artwork moves as a group.

Notice that when you re-position one frame of the walking man, you can't actually *see* the rest of the sequence being re-positioned along with it. It is not until you play the movie that you can tell the rest of the sequence has indeed been re-positioned.

Example #3

Tutorial #6 - The Frogs, gives an example of how you can re-position a sequence of a jumping frog by selecting the entire sequence and then moving any one selected frame.

A MINI-TUTORIAL

The Principle of "Selecting and Choosing"

(cont'd)

An Exercise – Try It For Yourself

Once you understand the principle of selecting then doing, your ability to edit an animation can improve dramatically. Here are some exercises to teach you the above principle. To perform these exercises, first open any movie.

Selecting Artwork on the Stage

1. Open the Score.
2. Click on one piece of artwork *on the Stage*. Notice that one cell is selected black in the Score.

Selecting More Artwork on the Stage

3. Press Shift and then click on other pieces of artwork on the Stage. Each piece of artwork (and their corresponding cells in the Score) should become selected as you click.
4. Drag any one of those pieces of artwork to a new position on the Stage. Notice that all selected artwork moves with it.
5. Step through the movie and notice that the rest of that sequence is still at its original position – it was *not* re-positioned because it was not selected.

Selecting a Sequence of Artwork

6. Select an entire channel by double-clicking on the channel number at the left edge of the Score. This should cause one piece of artwork to become selected on the Stage.
7. Drag the selected piece of artwork to a new position on the Stage.
8. Step through the movie and notice that the *entire channel* is re-positioned along with it.

Once again, this is evidence of the fact that selected artwork can be operated on as a group. Similarly, at this point you could Tweak, Clear, Cut, Copy, Switch or change the ink of *all* selected artwork with a single command.

Basic Editing in the Score

Up to this point, all editing we have described has been about editing directly on the Stage. This limits you to editing only one frame at a time. In this section we describe how to edit in the Score – this opens up the possibility of editing entire sequences at a time. You can do the following in the Score:

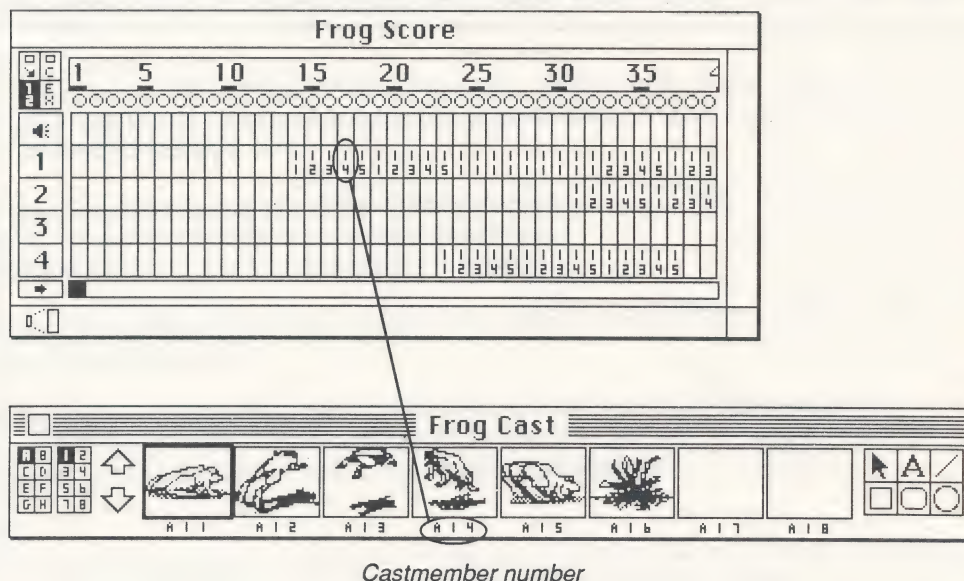
- Re-position entire sequences
- Change foreground priority
- Change the ink assigned to a sequence
- Cut and Paste sequences to change their order
- Make artwork move smoothly across the Stage (In-Between)

Getting Around in the Score

Before you can work in the Score, you need to know how to get around. The following is a description of the controls and indicators in the Score. Most of the controls allow you to view different information or regions in the Score. The Playback Head is different from all of the other controls in that it allows you to play back the animation.

Note: For more details about the Score, refer to the Score in the Reference section.

- **Scroll Bars** – Let you scroll the Score. When you drag the horizontal Scroll Box, a frame number pops up. This number indicates the frame that will be in the center of the Score.
- **Jump button** – Makes the Score scroll instantly to bring the Playback Head into view.
- **Option-Jump** – Press the Option key and click the Jump button to make the first *selected* cell in the Score jump into view.
- **Playback Head** – Drag it left or right to play back the animation.
- **Playback Head bar** – Click in the Playback Head bar to make the Playback Head jump
- **Zoom button**  – Click it to magnify the view. This is particularly useful for reading the extended display, or for displaying the Score on larger screens.



Castmember number

Using Display Buttons

The four Display Buttons change the notation in the Score as follows:

Click on this button:

To show this notation:



The first button

Channels 1-24 Change in identity and the direction of motion.
Sound Channel Tempo setting.



The second button

Channels 1-24 Change in identity and the ink.
Sound Channel Transition chosen.



The third button

Channels 1-24 Castmember number (or QuickDraw shape).
Sound Channel The number corresponding to the sound chosen.



The fourth button

Channels 1-24 Any combination of the information shown
and Sound Channel with the other three buttons.

Double-click on the A dialog box appears, allowing you to
fourth button specify what you want displayed in each cell.

5-P	5-P	5-P	5-Point o
Castmember change & Direction indicator (1st button)	Castmember change & Ink indicator (2nd button)	Castmember number (3rd button)	Extended display (4th button)

The four display buttons

How to Select in the Score

("Select black" and "Select blinking")

There are two different ways to make selections in the Score. One way is to drag across a range of cells – the cells are highlighted black. The other way is to click on a cell – a blinking cursor appears at the left edge of the cell. We describe both cases here.

Selecting a Range of Cells ("Select black")

Cells that are selected black can be selected for Cut, Copy, Paste, Clear or Blank From Stage. In all of these cases, only the selected cells are operated on. For example, when you Paste, only the cells that are selected black are pasted into. Cells that are not selected black will not be pasted over. This is in direct contrast to "select blinking."

To select:	Do this:	To extend the selection:
Any group of cells	Drag the pointer across the cells. * –or– Click the first cell, scroll the Score, then Shift-click the last cell.	Shift-click on a cell.
One entire channel	Double-click on the channel number at the left end of the Score.	Shift – double-click on the channel number.
A group of channels	Double-click on the channel number at the left end of the Score <i>and hold the mouse button down</i> , then drag down the column of channel numbers.	Shift – double-click on the channel number.
One or more frames	Drag across the frame numbers at the top of the Score.	Shift-click on a frame number.

* When you reach the right edge of the Score, the Score will auto-scroll, which allows you to continue selecting for as far as you want. However, using this auto-scroll technique is very slow if you have to drag hundreds of frames. In this case, click, scroll, then Shift-click.

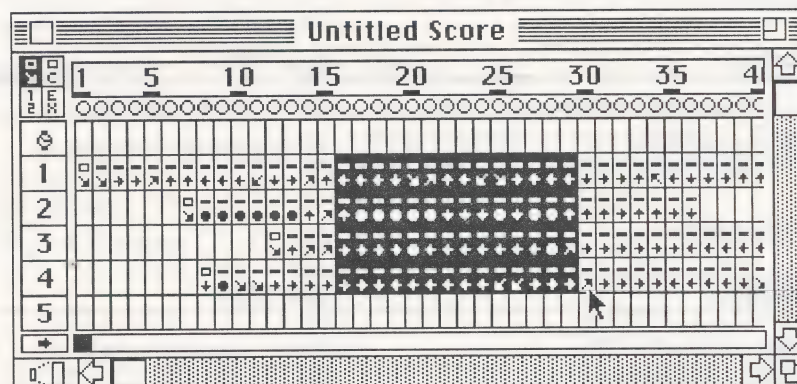
Selecting an Insertion Point ("Blinking cursor")

Used only for Paste operations. When you Paste, the inserted cells paste over any existing cells in the Score. An insertion point appears as a blinking cursor in the Score at the left edge of the cells you have selected, indicating where the next Paste operation will insert. It is analogous to the insertion point in the Text window or in any word processor.

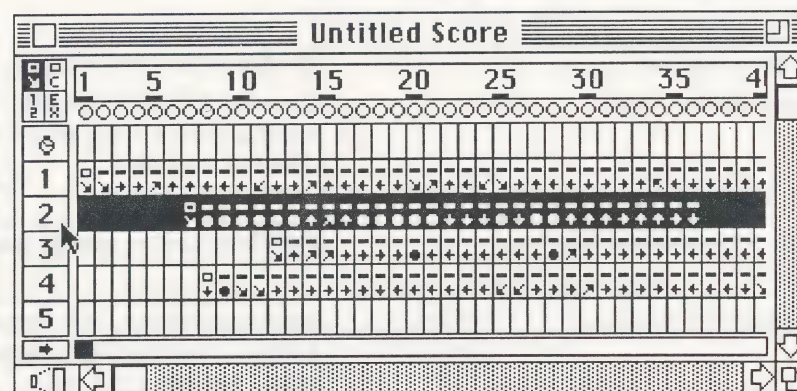
To select an insertion point:	Do this:	To extend the selection:
At one cell:	Click on the cell you want to select.	Shift-click on another cell directly above or below the selected cell.
Vertically across several channels:	Drag straight down across the channels you want to select.* –or– Click on the first cell, and Shift-click on the last cell directly below it.	(same as above)
Vertically across all channels:	Click on the frame number at the top of the Score.	(same as above)

Extending the selection (Shift key) – If you have already made a selection, you can easily change the range of the selection without starting over. Simply press the Shift key and click, drag or double-click on another cell.

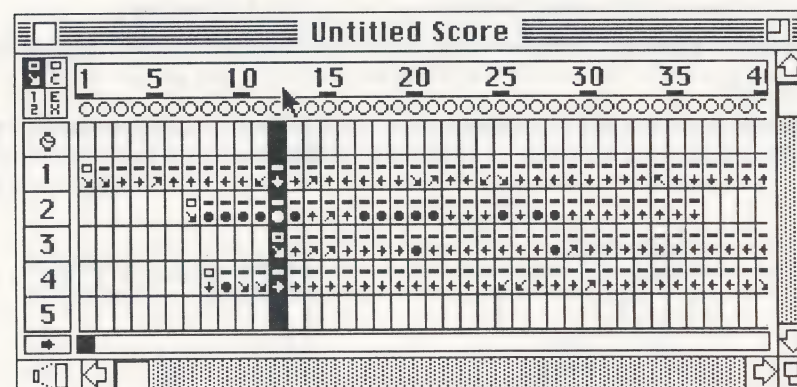
You can continue to use Shift to extend the selection further. As long as you hold the Shift key down when you click, you won't lose the selection already made.



Select a group of cells by dragging ("select black")



Select an entire channel by double-clicking on a channel number



Select entire frames by dragging across the top

Summary

Selecting Cells, Frames and Channels

ON STAGE:

To select:**Do this:**

- | | |
|--------------------------------|----------------------------|
| A single piece of artwork..... | Click on the artwork |
| A group of artwork..... | Shift-click on the artwork |

IN THE SCORE:

To select:**Do this:**

- | | |
|--|---|
| A single cell..... | Drag across that cell |
| A sequence or block of cells..... | Drag across that sequence or block of cells |
| | |
| An entire channel | Double-click on the channel number |
| A group of channels..... | Double-click and hold on the first channel number, then drag down across the other channel numbers. |
| | |
| One or more frames | Drag horizontally across the frame numbers |
| | |
| To extend a selection..... | Starting with any selection, hold down the Shift key and click on the last cell, channel or frame you want to select. |
| | |
| An insertion point for one channel | Click on the cell |
| An insertion point across several..... | Drag directly downward over the cells channels |
| An insertion point across <i>all</i> channels..... | Click on the frame number at the top of the Score |

How to Re-Position a Sequence of Art

To move a *sequence* of art to a new position:

1. Play the movie and stop at any frame in the sequence you want to re-position.
2. Open the Score and select the sequence you want to re-position by dragging across it with the pointer. The artwork should now appear selected on Stage (that is, enclosed in a dotted box).
3. Re-position the artwork in any of three ways. Which technique you use depends basically on how far you want to move the artwork:

To move artwork:

Do this:

Any distance or direction:

Move the pointer onto the artwork on the Stage. **Drag** the selected artwork to new position. When you move one piece of artwork the entire selected artwork moves.

A uniform distance:

Use **Tweak** (described next).

Only one pixel at a time:

Use the Command key shortcuts:

⌘ -	To move left one pixel
⌘ =	To move right one pixel
⌘ P	To move up one pixel
⌘ ;	To move down one pixel

Notice these keys are laid out in a logical pattern on the keyboard, as shown below. (These Command key equivalents are listed at the bottom of the Control menu.)

How to use Tweak

(Tweak window)

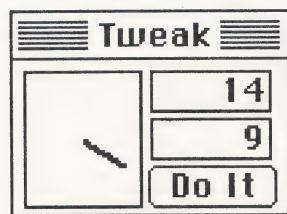
To use Tweak:

1. Select the artwork on Stage or the sequence in the Score that you want to move.
2. Select **Tweak** from the Window menu.
3. **Click** the pointer in the square on the left side of the Tweak window to set a line indicating the direction and distance you want the castmember to move. (See the illustration below.) You can also **drag** the line until it is positioned as you want.

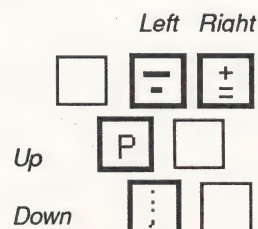
When you release the mouse button, two numbers are displayed to the right. The first number is the distance to move the artwork to the right. The second number is the distance down.

Note: To tweak long distances, drag the line as described in step 3, but drag the pointer outside the Tweak window – just keep on dragging. The coordinates will display larger and larger values the further you go.

4. To move the castmember, simply click the **Do It** button. The selected artwork moves the direction and distance specified. You can continue to move the artwork the same amount by clicking Do It again.



• Tweak window

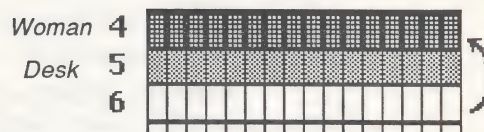
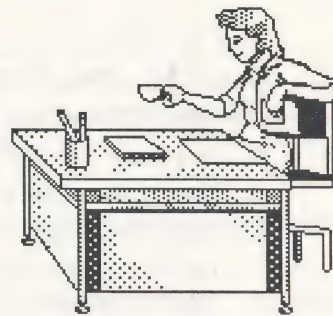


Tweak keys

(Cut Score and Paste Score)

1. First identify which channels the woman and desk are located in by clicking: Click on the woman on Stage and notice which channel in the channel indicator is selected black. Let's say this is channel 4.
2. Then click on the desk on Stage and notice which channel in the Channel Indicator is selected black. Let's say this is channel 5.

3. Open the Score. Double-click on the number 4 at the left end of the Score. The entire channel should now be selected black.
4. Choose **Cut** from the Edit menu.
5. Double-click on the number 6 at the left end of the Score. The entire channel should be selected black.
6. Choose **Paste** from the Edit menu.



The woman sits behind the desk when she is moved to channel 4.

How to Insert Frames in a Movie

(Insert Frame Command)

The Insert Frame command duplicates the frame that currently appears on the Stage.

There are two common reasons to insert frames into a movie:

- To create a pause (to slow down the action, to synchronize to sound or to lengthen the movie).
- To make room between two events for another action or castmember.

This procedure works with the Score open or closed. To insert frames one at a time into a movie:

1. Play the animation and stop at the frame where you want to add the extra frames.
2. Choose **Insert Frame** at the Edit menu once for each frame you want to insert.

Each frame is inserted at the current frame, across all 24 channels. If the movie was originally 100 frames long and you inserted 5 frames, it would now be 105 frames.

Note: If the Score is open, notice that the frame is inserted at the position of the Playback Head (unlike Paste which pastes frames at the currently selected point).

How to Delete Frames from a Movie

(Delete Frame and Clear Score Commands)

Deleting a frame removes all 24 channels of that frame. As a result, the movie is one frame shorter in length.

To delete just the current frame from a movie, the Score does not need to be open:

1. Play the movie and stop so the frame you want to delete is displayed on Stage.
2. Choose **Delete Frame** from the Edit menu.

You can continue deleting more frames by repeating step 2.

Note: If you use **Delete Frame** with the Score open, notice that it deletes the frame at the location of the Playback Head. Unlike the Clear command, it does not delete the frames that are selected black.

To delete a *series* of frames quickly, do it in the Score:

1. Open the Score.
2. Select the frames to be **deleted** by clicking at the top of the Score at the first frame number you want to delete and dragging to the right. The frames you want to delete should be selected black.
3. Choose **Clear Score** at the Edit menu.

Stage Editing vs. Score Editing

Practically any editing you can do in the Score you can also do from the Stage and Panel. The following is a list of equivalents:

Action	In Score	On Stage
Select a piece of artwork (current frame only).	Select the frame cell containing that artwork.	Click on the artwork on the Stage.
Select a channel (current frame only).	Click on the channel number at the left end of the Score	Click on the Channel Indicator.
Select a range of frames.	Drag pointer across the frames.	Drag the left Range Indicator up or down to set the left frame. Drag the right Range Indicator up or down to select the right-hand frames.
Move to a particular frame.	Drag the Playback Head left or right.	Drag the Frame Counter left or right.
Select an insertion point for Paste (blinking cursor).	Click on that frame cell (there will be a blinking vertical bar).	(No equivalent)

Shift-click works on both the Stage and in the Score to extend a selection.

Intermediate Editing in the Score

This section describes how to:

- Cut, Copy and Paste in the Score
- Use In-Between to create stationary artwork
- Use In-Between to make artwork move smoothly
- Use In-Between to make artwork stretch
- Paste-relative to chain sequences together

How to Cut, Copy and Paste in the Score

(Cut Score, Copy Score and Paste Score Commands)

Use this procedure to move or copy part of the Score to another spot in the same Score. This procedure works for any part of the Score you can select – individual cells, blocks of cells, sequences, or entire frames. See the previous procedure "How to Change Foreground Priority" for cutting and pasting entire channels.

1. Open the Score and select the cells, channels or frames you want to Cut or Copy.
2. Choose **Cut Score** or **Copy Score** from the Edit menu.
3. To paste the *entire* sequence, select an insertion point (you will see a blinking cursor).
4. Choose **Paste Score** from the Edit menu.

The sequence is cut or copied from one location and pasted at another, pasting over any existing cells.

Note: If you want to paste into a limited region of the Score, drag the pointer across the region to select it black. When you Paste Score, the sequence will fill in only the cells that are selected black and no further.

How to Clear Cells from the Score

(Clear Score Command)

This procedure works for clearing any part of the Score you can select – any single cell, group of cells, sequence, frames or channels.

1. Open the Score and select the cells, channels or frames you want to clear.
2. Choose **Clear Score** from the Edit menu.

The selected cells are erased – they are now empty.

Note: When you select entire frames by dragging across the frame numbers at the top of the Score, choosing Clear Score causes those frames to be *deleted*, rather than just emptied.

Use the Blank From Stage command in the Edit menu when you want to empty cells in the Score when the Score is closed. Blank From Stage is entirely equivalent to Clear Score.

Shortcut: When you are not entering text, the Backspace key is equivalent to Blank From Stage.

Notice that the Clear Score command operates exactly the same as Cut Score, except the cut frames are not placed on the Clipboard.

How to Insert and Delete Time in a Movie

(Cut and Paste Across All Channels)

Everyone who uses a computer is familiar with the way that Cut and Paste work in a word processor. When you Cut something, the gap is closed up automatically.. When you Paste something, the text after the insertion point gets pushed out (it doesn't disappear).

VIDEOWORKS II doesn't always work that way, but it can. It depends on whether all 25 channels (24 animation + 1 sound) are selected or not.

If all 25 channels are selected: VideoWorks works "like a word processor." That is, the Cut and Clear commands will cut out time (closing the gap automatically) and the Paste command will insert time (pushing the succeeding frames back in time).

If not all 25 channels selected: VideoWorks will not "work like a word processor." That is, the Cut and Clear commands will not cut out time (any gap will remain) and it will not insert time (any succeeding frames will be written over, not pushed back).

The easiest way to select all 25 channels is to click and drag across the frame numbers at the top of the Score. (You can also click an insertion point across all 25 channels at the top of the Score.)

In addition, keep in mind that the Paste command works in two distinctly different ways, depending on the type of selection you are pasting into:

If there is a blinking cursor: Paste will paste the entire contents of the Clipboard but only over those channels that have the insertion line.

If there is a solid black selection: Paste will affect *only* the selected cells, even if what you are pasting in is longer.

A MINI-TUTORIAL

Understanding Cut, Copy, Clear and Paste

To use Cut, Copy, Clear and Paste effectively, you must be aware which window is active, or you may wind up, for instance, cutting a castmember from the Cast when you were actually trying to cut frames from the Score. Cut, Copy, Clear and Paste operate only on the currently active window. Observe this rule:

Before using Cut, Copy, Paste or Clear, make sure the window you want to work in – either Paint, Text, Cast or Score is active.

For example, if the Cast is currently the active window, then choosing the Cut command will cut artwork from the Cast. However, if the Score is active, then choosing Cut will cut cells from the Score.

Note: The Stage is a special case – while you cannot use Cut, Copy and Paste directly on the Stage, you can open the Score and perform the operations there instead.

Cut, Copy, Paste and Clear can operate on three different kinds of objects – artwork, text and cells – depending on which window is active. For example, use Cut to:

- Cut the selected *artwork* from the Paint or Cast window
- Cut the selected *text* from the Text window
- Cut the selected *cells* from the Score

To demonstrate, try the following mini-tutorial:

1. Open any movie. (We will be modifying it, but will not save changes when done so as not to alter the document on disk.)
2. Open Paint, the Cast and the Score.
3. **Paint.** Click on an easel in Paint to make it active. Select part of its art with the Selection Box. Then pull down the Edit menu and notice it says Cut Graphic, Copy Graphic and Clear Graphic. Choose Copy Graphic.
4. Now pull down the Edit menu again and notice that it says Paste Graphic. This indicates that artwork is on the Clipboard, ready to be pasted.
5. **The Cast.** Now click on the Cast to make it the active window. Pull down the Edit menu and notice it still says Paste Graphic, since the Clipboard still contains the artwork you just pasted to it. However, since the Cast is active, it now says Cut Cast, Copy Cast and Clear Cast. Go ahead and select an empty position in the Cast and then choose Paste Graphic. You have just pasted from Paint to the Cast.
6. **The Score.** Click on the Score to make it active. Select a few frames in the Score. Pull down the Edit menu. Since the artwork is still on the Clipboard and since pasting artwork into the Score is not allowed, that option is now dimmed. Notice it says Cut Score, Copy Score and Clear Score.

How to Create Stationary Artwork in a Movie

(In-Between Command)

This procedure describes how to make artwork stand still during a movie. The idea is to use the In-Between command to copy one cell over many frames of a channel.

To prepare, open the Score and scroll it, if necessary, so that you can view the cell where you want the artwork to begin standing still. If the artwork is not yet on the Stage, place it on the Stage.

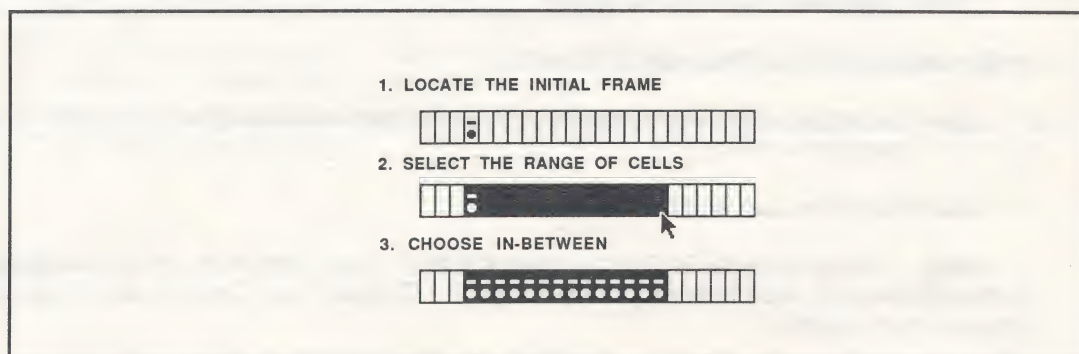
Note: Be sure the range of cells you want to fill are blank. The In-Between command will not paste over occupied cells.

1. Drag the pointer from this starting cell to the right as many frames as you want.
2. Choose **In-Between** from the Edit menu.

Shortcut: Command-G

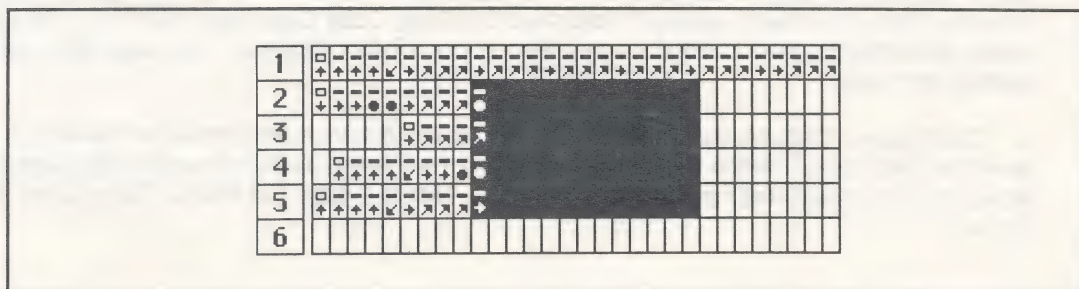
The selected cells fill in with copies of the starting cell. If you select the direction indicators in the Score, you will notice there is no movement from frame to frame, as shown below.

When you play this movie, the artwork you added will stand in one place for the duration of filled-in cells. This technique is also called "fill right" since the cells are filled to the right with copies of the leftmost selected cell.



Using In-Between to create stationary art

This procedure works with any number of adjacent channels. Simply select the block of cells, as shown below:



Using In-Between on Multiple Channels

How to Make Artwork Move Smoothly Between Two Points (In-Between Command)

This procedure describes how to make a piece of artwork move smoothly in a straight line in any direction across the Stage. For the sake of example, suppose we have a document where we want to add such a sequence in channel 5, from frames 50 to 200.

To prepare, open the Score and scroll it, if necessary so that you can view the starting cell (channel 5, frame 50). If the artwork is not yet on the Stage, go ahead and place it on the Stage.

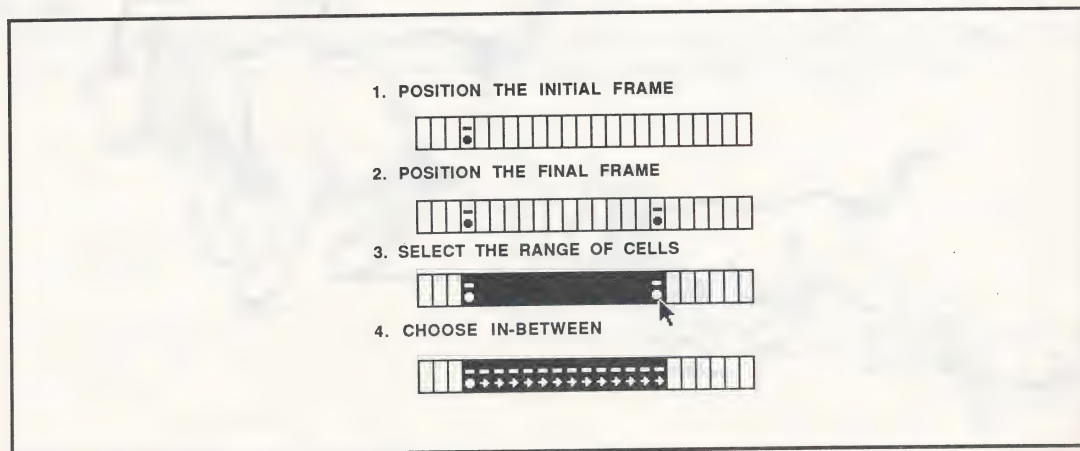
Note: Be sure the range of cells are blank between the two endpoints (between frames 50 and 200 of channel 5). The In-Between command will not paste over occupied cells.

1. Select the starting frame cell for the new artwork (frame 50) so it is selected black.
2. Choose **Copy** from the Edit menu.
3. Use the scroll bar to scroll the Score to where you want the final frame of art to be (frame 200) and select that frame so it is black.
4. Choose **Paste** from the Edit menu.

You now have exactly the same piece of artwork at both the starting and ending frames (frames 50 and 200). Because they are identical copies, both pieces have exactly the same locations on the Stage, as well, so let's move the ending piece of art.

5. Click on the Playback Head bar at this final frame (frame 200) to make the Playback Head jump there. Move the pointer onto the Stage and re-position the artwork to where you want it to end up. (If you want, use the Shift key to constrain it.)
6. Select the range of frames from start to finish (frame 50 to 200, channel 5) by dragging across them.
7. Choose **In-Between** from the Edit menu.

Play the movie you should see the artwork move smoothly in a straight line (in this case, from frame 50 to frame 200).



Using In-Between to create a moving piece of art.

How to Make Artwork Stretch as it Moves

(In-Between Command)

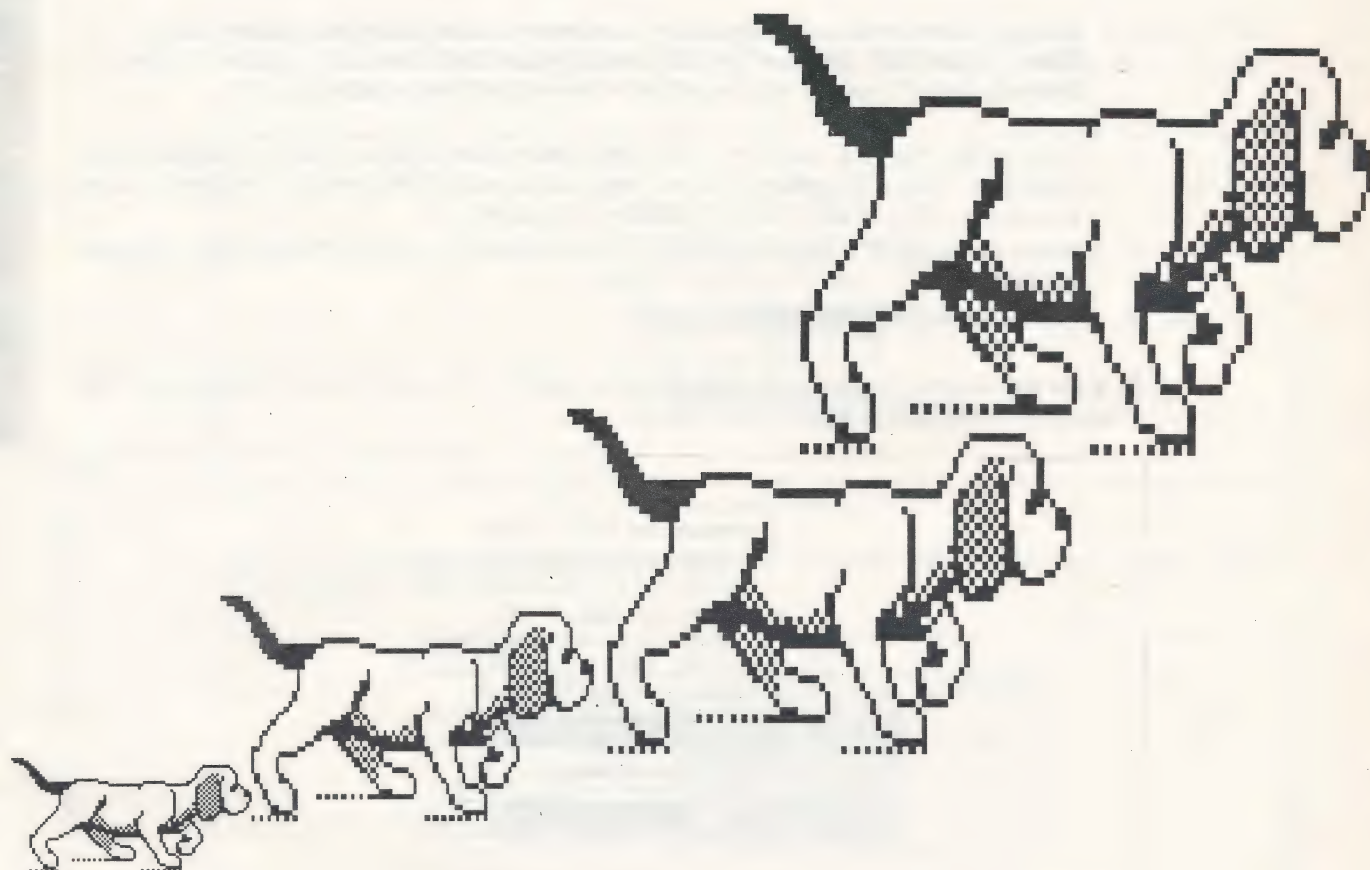
This procedure describes how to create a single castmember stretching (or shrinking) as it moves across the Stage. (To illustrate, we'll add the artwork at channel 5, starting it small at frame 50 and stretching to frame 200.)

This procedure is the same as the procedure "How to Make Artwork Move Between Two Points" except there is another step between steps 5 and 6. (Let's call it step 5a.)

5a. Stretch (or shrink) the artwork by pulling on its handles.

Play the movie and watch the artwork stretch (or shrink), from frame 50 to frame 200 in this case.

Note that you can stretch or shrink either the starting or ending artwork for different effects.



How to Use Paste-Relative to Chain a Sequence (Paste-Relative Command)

Use Paste-Relative to link sequences together to create one continuous motion across the Stage. If you were to create a sequence of a horse galloping, all you would need to do is create one complete cycle of four or five frames, then use Paste-Relative to repeat that short sequence across the Stage. Using Paste-Relative, the horse's second gallop would automatically begin where the first gallop ends.

The Paste-Relative command is merely a convenience – you could do the same thing manually, by using the normal Paste command, then selecting the new sequence and re-positioning it to follow the first sequence.

This procedure describes how to copy a sequence and paste it after the original so that the two sequences play in one continuous motion across the Stage: For the sake of example, suppose we have a document where we want to add such a sequence in channel 1, from frames 1 to 10.

1. Open the Score and select the sequence (channel 1, frames 1 to 10).
2. Choose **Copy** from the Edit menu.
3. Click on the last cell in the sequence (frame 10) – you should see a blinking cursor at the *left* edge of the cell. Choose **Paste Relative** from the Edit menu.
4. To continue the sequence across the Stage, repeat step 3, each time selecting and pasting at the last cell in the sequence.

When you hit Play, the sequences (the original and the copies) will appear as one smooth, continuous motion across the Stage.

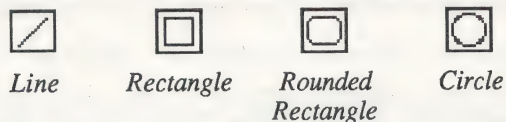
Note: By selecting the last cell (frame 10) in step 3, that cell is pasted over and replaced by the first cell of the new sequence. If you do not want to lose that last cell, select the next frame instead (frame 11). However, in such a case, two frames (frames 10 and 11) would have the same location, creating a one-frame pause.

Like the normal Paste command, Paste Relative pastes over any existing cells when you select with a blinking cursor. If you select a range of cells by dragging, only those cells will be pasted into.

An instructive example of the Paste-Relative command is given in Tutorial #6 - The Frogs. You can use the above procedure to chain two different sequences together for a special effect.

6. Adding QuickDraw Shapes

QuickDraw Shapes are geometric shapes that you can draw directly on the Stage. The four icons shown below are the QuickDraw tools for creating these shapes, much like the rectangle, circle and line tools in the Paint window. However, the shapes you draw with the QuickDraw Shape tools have characteristics very different from those drawn in the Paint window. In fact they resemble MacDraw's tools in many ways, as they are resizeable and their pattern and line thickness can be changed at any time.



QuickDraw Shapes are ideal to use as stationary objects in a scene, such as backgrounds because they take much less memory than the same bit-mapped shapes in Paint. When you try to move a QuickDraw Shape as part of an animation, it tends to flash and sometimes tear apart (especially if it's large). Use the Paint window to create shapes that you want to animate on the Stage. In addition, you cannot real-time record with QuickDraw shapes. QuickDraw Shapes are not kept in the Cast – they appear only on Stage and in the Score.

You can fill a QuickDraw Shape with any of the patterns and change its outline with the line widths from the Draw menu.

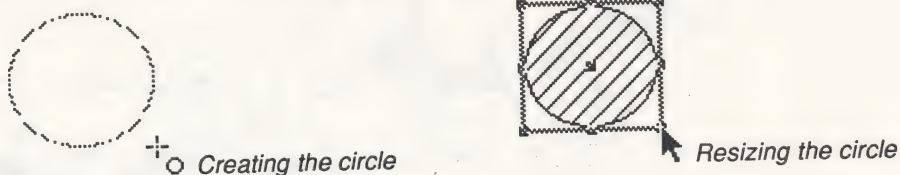
To create a QuickDraw Shape:

1. Click on the QuickDraw line, rectangle, rounded rectangle or circle tool. Notice the pointer changes to crosshairs with a tiny, corresponding shape attached to it.



Note: If you decide you don't want to draw a QuickDraw Shape, you can return the crosshairs to the normal pointer, by clicking on the pointer tool  at the right end of the Cast or on the QuickDraw shape tool itself (it toggles on and off).

2. Move to the Stage, press the mouse button and drag open the shape. You can always re-size the shape later by pulling any one of its eight handles.



3. If you want, pull down the Draw menu and select a line width or fill pattern.

7. Adding Film Loops

A Film Loop is an *animated* piece of art, kept in the Cast, that is used with real-time record. Let's say someone has already created a Film Loop called "Flying Bird," and it resides in the Cast at position A21. When you start Real-Time Recording with it, the first thing you would notice is that *its wings would be flapping*, even when you hold the bird stationary. This is the unique characteristic of Film Loops – they have built-in motion, like a clip of film.

The best way to animate a spinning ball, for example, is with a Film Loop. Film Loops are also good for a person walking, a coin flipping or a man digging. We demonstrated a bird flapping its wings in the Tutorial #5 named "The City." Film Loops are a nice way to liven up an animation. Once you've created the Film Loop, you can use it over and over again very easily.

How to Create a Film Loop

To show you how to create a Film Loop, let's use the example of a bird flapping its wings, a three-frame sequence. You can create the Film Loop in either an existing or a new movie.

1. Create the sequence or find one that already exists. To create one, use the procedure "How to Animate a Sequence Frame-by-Frame."

Note: Sequences are generally smoother when they are made up of odd numbers of frames (3, 5, 7, ... etc.)

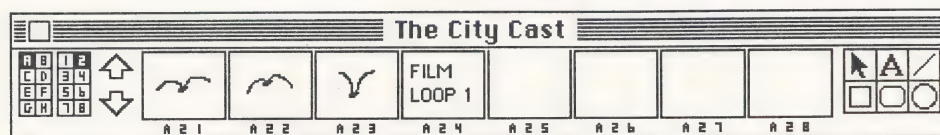
Briefly, to create a sequence, you would go into the Paint window and draw three pictures on three different Paint easels. At this point they would appear in the Cast as shown below. Then use the procedure "How to Animate a Sequence Frame-by-Frame" to create the sequence on Stage of the bird flapping its wings.

Note: It is highly recommended that you learn how to use registration points when making sequences for Film Loops. See the section on Registration Points below.

2. Open the Score and select the frames that make up the sequence by dragging the pointer across the frames. If the sequence cycles, select only one cycle of the sequence.

Note: Select only one channel. Film Loop works with only one channel.

4. Choose **Copy** from the Edit menu.
5. Select an empty position in the Cast by clicking on it.
6. Choose **Paste** from the Edit menu. That position in the Cast now contains the label "Film Loop 1"



This Film Loop is now ready for you to Real-Time Record it on the Stage – see the procedure Animating with a Film Loop that follows.

It is interesting to note that after you have used a Film Loop in an animation, when you look in the Score and analyze this new sequence, it looks no different than any other sequence. In fact, it is just a copy of the same sequence that you selected in the first place.

Note that you can copy the Film Loop out of the cast and paste it back into the Score. This way you could edit an existing Film Loop, and put it back in the Cast when done with it.

An example of creating and using a Film Loop is given in Tutorial #6 - The Frogs.

Animating with a Film Loop

Film Loops can be animated only with Real-Time Recording, and are created no different than animating ordinary art. Select the Film Loop in the Cast, hold down the Command-Option keys, move the pointer to the Stage and begin recording by pressing down the mouse button and moving the Film Loop around. All your actions will be recorded until you release the mouse button.

Setting Registration Points in a Film Loop

If you find your Film Loop's motion to be jerky and unnatural, you probably need to set "logical" registration points for your sequence.

For example, in the jumping frog, a good place for the registration point would be on the shadow of the frog. This way, when the person using the film loop holds the frog still, the shadow will *not* move yet the rest of the frog *will* move. Similarly, for the flapping bird, you would want the registration point to be on the head of the bird. For an arm that swings, you would want the registration point at the shoulder. For a walking animal, the shoulder or hips are possibilities.

Registration points are easily set for a given piece of art in the Paint window. You click on the Registration Point tool (see Paint window in "VideoWorks Reference") and the registration point appears. A click of the mouse then sets the registration point to where you want it.

Storing Film Loops

We recommend that you store your favorite Film Loops so that you can use them in new animations. The simplest way to store Film Loops is as follows:

Take a movie with Film Loops already in it and choose Burn Scene to remove the part you don't need (to make the movie smaller). Choose Save As, and rename the movie "Film Loop of Bird." (To save even more space, you can remove artwork you don't need from the Cast by clearing that artwork one-by-one with the Clear Cast command.)

You could also copy Film Loops from various VideoWorks movies and paste them all in a single movie. When you do this, you must Copy and Paste the sequence from one Score to the other Score. You cannot Copy and Paste a Film Loop from the Cast of one movie to the Cast of another.

Using In-Between to Move a Film Loop Across the Stage

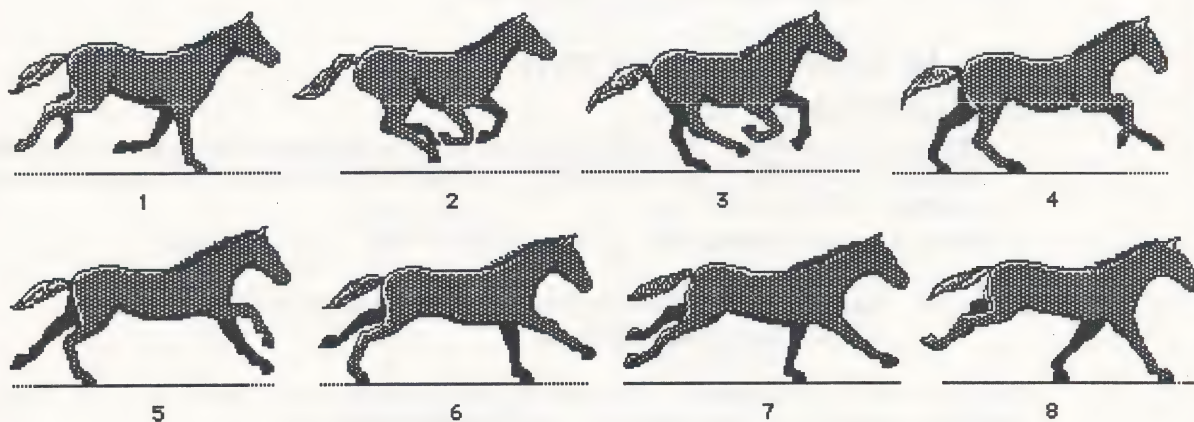
(Shift – In-Between)

You can use In-Between with a Film Loop to make it move in a straight line across the Stage. To do this, let's assume you have already created the Film Loop, have selected a channel to record in, and the Score is open.

1. Place the first castmember of the sequence on the Stage where you want the sequence to start.
2. Move the Playback Head to a later frame and place the same (or another) piece of art on the Stage where you want the sequence to end.
3. In the Score, select the range that includes the two cells you just placed.
4. Click on the Film Loop in the Cast to select it. (This determines which Film Loop will be pasted into the Cast.)
5. Hold down the **Shift** key and choose **In-Between**.

Shortcut: Press **Shift-Command-G** in place of the last step.
(Notice that Command-G is the shortcut for a normal In-Between.)

When you play the movie, the Film Loop will start out at the initial location, then move to the final location, all-the-while continuing its built-in motion. If the final piece of art is out of sync, switch it with another castmember or delete it altogether.



8. Adding Text

You can create text in the Paint window or in the Text window. The two kinds of text have very different characteristics. Paint window text has better for animating (moving across the Stage), while the Text window text is easier to edit and takes up less memory.

How to Type Text in the Paint Window

To create text in the Paint window in order to add to a movie:

1. Open the Paint window. Click on the New Easel tool . Make the easel larger by pulling on its handle.
2. Click on the Text tool .
3. Click in the Easel and begin typing. Choose a font, style and size from the Text menu either before or after you type.

Note: Once you click the mouse again, the type font, style and size cannot be changed.

As you type, the text immediately appears in the first available Cast position. When done typing, you can drag the text out onto the Stage like any other artwork.

You can create text in the Text window (and Cast) in either of two ways: By typing into the Text window or by typing directly on Stage into a Text Box.

How to Type Text in the Text Window

To enter text into the Text window:

1. Open the Text window. The slots in the Text window correspond exactly to the castmember positions in the Cast. A gray slot in the Text window indicates that Cast position is already occupied by Paint artwork.
2. Move to an empty slot and click – the slot becomes taller – and begin typing.

Note: If you type text into a slot numbered 70 to 88, you can have that text spoken with Macintalk.

The text is now entered into the Text window – it also appears in the Cast as you type. You can drag the text out onto the Stage from the Cast like any other artwork.

If you are importing text (from MacWrite, for instance), you can use Paste to get text into the Text window.

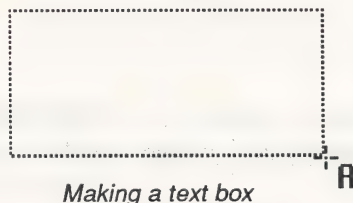
How to Type Text Directly On Stage

(Text Box)

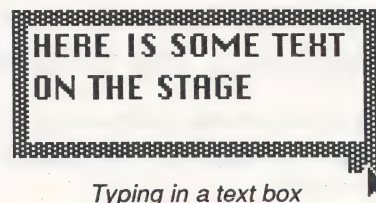
To type text directly on Stage:

1. Click the Text Box  at the right end of the Cast.
2. Move onto the Stage – the cursor should appear as: 
3. Drag a text box open on the Stage and begin typing.

The text you type appears on the Stage.



Making a text box



Typing in a text box

The following chart compares text in the Paint Window to text in the Text window.

Comparison of Text
Paint Window vs. Text Window

	Text created in Paint Window	Text created in Text Window
Characteristic	Bit oriented	Character oriented
Can edit directly on stage?	No (must edit in Paint window)	Yes
How quickly can it move across the Stage?	Faster	Slower
Memory required	More	Less

9. Adding Sound, Tempos and Transitions

Sounds, Tempos and Transitions are independent features that have one thing in common – they all share the top channel of the Score.

Note: For the sake of brevity, throughout this manual we are calling this the Sound Channel.

The Sound menu contains dozens of different sounds to add to your animations. VideoWorks has one sound track, the topmost channel of the Score. This channel is indicated by the loudspeaker icon.

Adjusting the Volume

You can turn the sound on and off at the Panel by clicking on the loudspeaker icon:  (here it's shown turned on). You can also adjust the volume of the sound at the Control Panel desk accessory.

Note: If you cannot get sounds to work, refer to the Troubleshooting section on the Sounds file in the appendix for suggestions to get it working.

How to Add Sound to a Movie

This procedure describes how to add sound to a VideoWorks document. When assigning a sound, make sure the movie is playing at its proper speed.

You can use this same procedure for either *adding* or *changing* a sound:

1. Open the Score.
2. Drag the pointer across the frames in the sound channel where you want the sound. Those frame should be selected black.
3. Pull down the Sound menu, move down to the item you want and pause without releasing the mouse button. A submenu pops up – move sideways to the sound you want and release the mouse button.

Note: The submenus in step 3 work only if you are using System 4.1. If you are using an earlier System, see the Sound menu in the VideoWorks Reference section for more information.

The sound you have chosen is pasted into the selected frames of of the sound channel. If you click on the castmember number button , you can see the sound's identification number in the sound channel. To repeat a sound, refer to the next topic.

Synchronizing Sound to Pictures

When you use the Speed Control to speed up a movie, the pictures speed up, as does the spacing between individual sounds. However, the sounds themselves *do not* speed up. For example, the Mozart piece plays at the same tempo. Therefore when fitting the action on Stage to long, continuous music, it is important to pick one speed and stick to it.

However, when you synchronize very *short* sounds to pictures, such as footsteps sound to a person walking, the speed setting makes no difference. Every time the foot makes another step, the footsteps sound is generated at that frame.

When your movie contains music, you may want to alter the pictures to fit the sound rather than the other way around. Use Insert Frame or Delete Frame to make a movie longer or shorter. This is described in "How to Speed Up or Slow Down a Sequence." under Advanced Animation Techniques at the end of this "How to Animate" section.

Removing A Sound

If you want to remove a sound, you must be careful not to remove any transition or tempo that stored in the same channel. If there is a hidden transition or tempo in the sound channel, the cells will be gray as a warning.

Note: If there are transitions or tempos in the sound channel, you should write down what they are, because you will need to re-assign them to the frames that you clear out.

To remove a sound:

1. Click on the cast member number button . This causes the sound codes to appear in the sound channel.
2. Drag the pointer along the cells containing the sound you want to remove. They should be selected black. Choose **Clear Score** from the Edit menu.

This procedure removes sounds, transitions and tempos from the sound channel. You must re-assign any transitions or tempos that you removed.

Rewind and play the movie. Notice the sound will continue uninterrupted as long as it is uninterrupted in the sound channel. Once the sound channel is interrupted (by another sound or by a blank cell), the sound resets to the beginning.

Re-Triggering a Sound

All sounds in VideoWorks fall into one of two categories, those that require re-triggering and those that do not. To re-trigger a sound, you include a blank cell in the sound channel. The blank cell causes the sound which follows to start over again.

- **Continuous sounds** – Sound that do *not* require re-triggering. These have no detectable start or stop. They can play continuously for whatever length of time you specify – for thousands of frames.

Examples: Rockslide, Forest Fire, Jet engine, Helicopter, Idle, Drone 1, Drone 2, Cartoon, Rock 1, Rock 2, Boogie Woogie, Jazz, Funk 1, Funk 2, YX-Synthesis and Y-Synthesis.

- **Sounds that require re-triggering** – Most sounds in the Sound menu fall into this category. These have a definite start and finish. These will play only once and then stop. To get them to repeat, you must include at least one blank cell before you repeat the sound.

Examples: Do, Re, Mi, Cowbell, Footstep, Mozart, Bach, and almost all other sounds except those listed in the previous category. These sounds might last for only a moment (Do, Re, Mi, Cowbell, Footstep) or for much longer (Mozart, Bach). Once the sound stops, it needs at least one blank cell in the sound channel before you can repeat the sound.

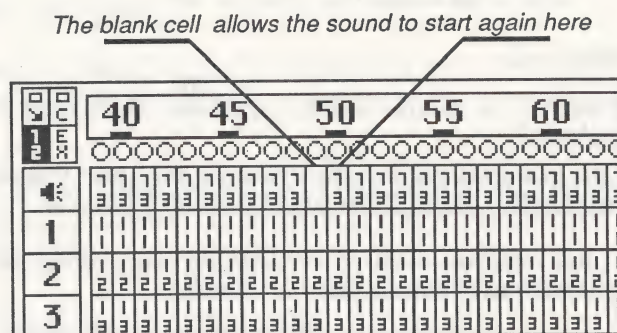
Sampled sounds can fall into either category -- you can select in "Sound-to-Video" if you want it continuous or not.

How to Make a Sound Repeat

This procedure is necessary only for sounds that require re-triggering.

1. Insert the sound in the sound channel as described in "How to Assign Sound to an Animation." Let's say the sound is assigned to frames 1 to 200.
2. Start the movie and set it to its proper speed. Open the Score, watch the Playback Head and notice the frame number where you want the sound to start again. (A convenient way to do this is to stop the movie at that point.) For example, let's say this is frame 50.
3. Clear the previous cell (frame 49) in the sound channel from the Score by selecting it and choosing choose Clear Score from the Edit menu.

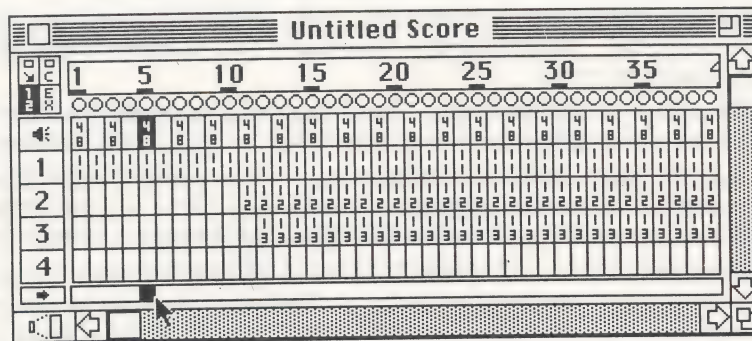
When you play the movie, the blank cell allows the sound to repeat again.



Using a blank cell to re-trigger a sound

Sound have different lengths. Some are very quick (like a footstep), while others are very long (like music). You may want to repeat a sound over a longer period of time.

Here's an example of repeating a short sound quickly. The Cowbell is a very short sound, requiring only one cell. To create a *series* of closely-spaced Cowbell sounds, you would alternate the Cowbell with blank cells, as shown:



How to Make Sound Dependent on the Position of Art

Two interesting never-ending sounds are Y-Synthesis and YX-Synthesis. The tone and volume of these sounds are determined directly by the position of the artwork on the Stage.

With both sounds as the art moves down the screen, the sound gets lower in pitch; as it moves up, it gets higher in pitch. Y-synthesis produces a pure tone, while YX-Synthesis produces a raspy tone that also gets slightly louder as the art moves to the right. The effect is a direct synchronization of sound to video.

You can use Y-Synthesis or YX-Synthesis in this procedure to connect moving art with a sound. As an example, we use Y-Synthesis.

1. Open the Score. Select the frames of an existing sequence you want to base the sound on. (Do not select the sound channel.) Copy and Paste this sequence into the sound channel, starting at the same frame.
2. Select the frames in the sound channel you just pasted into (if not already selected) and select Y-Synthesis from the Basic submenu of the Sound menu. As the artwork moves toward the top of the Stage, you'll hear the pitch increase along with it.

All of the melody lines in the Old Music, New Music and Business submenus can be synergistically connected to artwork, but in a different way. The key they play in depends on the starting position of the art.

How to Make Your Macintosh Speak (Macintalk)

You can make any text in the Text window spoken by your Macintosh.

Note: Make sure the Macintalk file is in *same* folder as the Sounds file. If not, Macintalk will be silent. For more information, see the Sounds file in the Appendix.

To make your Macintosh speak text:

1. Start with text in the Text window at A71 to A78 or A81 to A88. (For example, let's pick A71.) These are the only positions where Macintalk works.
2. Open the Score and select *one* cell in the sound channel where you would like to hear the text spoken.
3. Pull down the Sounds menu, move to **Macintalk**, wait for the submenu to pop up, then move the pointer to the cast number you used in step 1. (In this case, "F-1 Cast #7-1.")

Play the movie. When it reaches the frame with the Macintalk, the animation stops temporarily and the text is spoken. All animation stops temporarily while Macintalk is speaking because it demands all of the computer's processing power. If Macintalk doesn't work, make sure the Sound switch is turned on in the Panel. If that still doesn't fix it, make sure you have the Macintalk file in the same folder as the Sounds file.

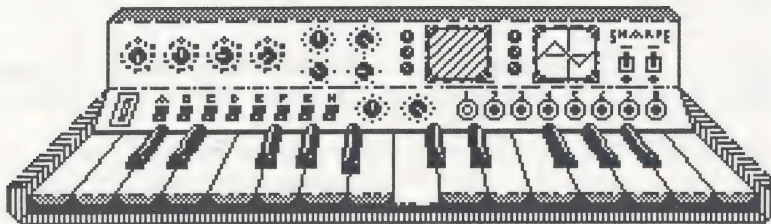
Note: If you have text that already appears somewhere in the Text window, you can easily turn it into Macintalk speech: Use the previous procedure except in step 1, simply use Copy and Paste to move the text into the Cast.

Sampled Sound (Sound Cap)

Sampled sound is sound that has been captured with a microphone and stored directly on disk. Though this requires special hardware, the results are very impressive and realistic sounds you can use in your animations. For further description, see "Sampled Sound" in the "Advanced Animation" section later in "How to Animate."

MusicWorks

MusicWorks is a product that allows you to create music on your Macintosh. With the program Music → Video, you can import these sounds for use in animations. For further description, see "MusicWorks to VideoWorks" in the "Advanced Animation" section later in "How to Animate."



How to Add Tempos

The Set Tempo command lets you easily change the tempo at different places in the animation. Adding a tempo is very similar to adding a sound.

You can use this same procedure for either *adding* or *changing* a tempo.

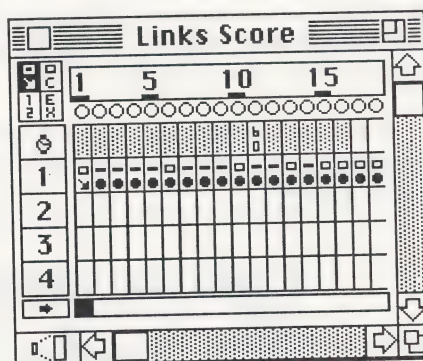
1. Open the Score. Drag the pointer across the frames in the sound channel where you want the tempo. Those frame should be selected black.
2. Choose **Set Tempo** at the Edit menu. A dialog box appears.
3. Type in a number from 1 to 60 for the tempo. The higher the number, the faster the speed. This is the same numbering system that appears on the speed control in the Panel.

Note: When you switch to another display in the Score (with the Display Buttons), the sound channel will be grayed out, indicating that a tempo is present.

The value you typed in should now appear in the Score. An indicator to show a *change* of tempo appears in the Score. Now when you play the movie, when it reaches this frame, the tempo will change to the value you specified.

If you later want to find out what value the tempo is, select the cell you are interested in and choose Set Tempo again. The value that is selected will appear in the dialog box.

You can perform the above procedure whether or not the Tempo channel is actually being displayed – that is, regardless which of the four display buttons is pressed.



Tempo set to 60 in frame 11.

How to Add Transitions

The Set Transitions command lets you easily create a transition between two frames in the animation. Adding a transition is very similar to adding a sound or tempo. Like a tempo, you assign the transition to only a single frame.

The symbols for transitions in any animation reside in the Score in the sound channel. You can view them by clicking on the ink button .

The following procedure describes how to add transitions to your animation. You can use this same procedure for either *adding* or *changing* a transition.

Note: For this procedure, it is *not* necessary for the transition icon to be showing at the left end of the Score.

1. Open the Score. Select the frame in the sound channel that you want to make the transition to. For example, putting the transition in frame 11 will cause the transition to occur between frames 10 and 11.. That frame should be selected black.

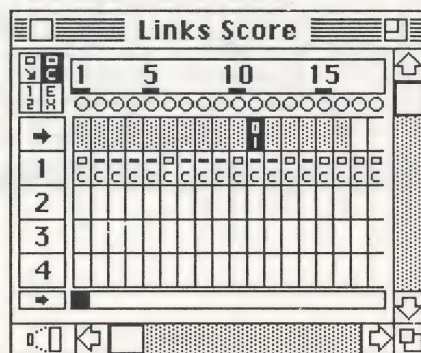
Note: This frame that contains the art that you want at the *end* of the transition.

2. Choose **Set Transition** at the Edit menu. A dialog box appears.
3. Click on the transition you want, then click OK.

An indicator for the transition appears in the Score. When you play the movie, it will pause at the frame before the frame you selected and make the transition into the frame you selected.

If you later want to identify what transition is present in the Score, select the cell in the sound channel with the transition symbol and choose Set Transition. The current transition will be marked off.

Note: When you switch to another display in the Score (with the Display Buttons), the sound channel will be grayed out, indicating that a transition is present.



Transition 0-1 in frame 11.

10. Using Inks

Inks modify the way artwork appears on the Stage and determine how its patterns interact with artwork behind it. It's important to realize that inks are used in two places: on artwork in the Paint window and in animations on the Stage (and Score). Which place the ink is applied to is determined by the window that is active (Paint or Score) when you pull down the Ink menu and choose the ink. Inks in the Paint window are described under "Creating Artwork."

For some good examples of using inks, see the table below. We have included a movie called Ink Demo, which plays the same animation with all the various inks.

Note: An important thing to know about inks is: When artwork A is positioned in front of artwork B, only the ink of artwork A determines how the patterns interact. It makes absolutely no difference what the ink of the background art is.

How to Change the Ink in Animations

There are basically two ways to set the ink mode. You can set it either before or after you place art on the Stage.

If you know in advance what ink you want to use before you have placed the artwork on the Stage:

1. Click on the Cast to make it active.
2. Choose the ink you want from the Ink menu.
3. Drag out the artwork onto the Stage.

Note: This first step is important only to make sure the Paint window is not active. If the Paint window is active, you will set the ink for the Paint tools, not the ink for castmembers being dragged onto the Stage.

The artwork will have the ink you specified. This procedure is simple in that it does not require the Score to be open.

If the artwork is already on the Stage and you want to *change* its ink:

1. Open the Score and select the cells corresponding to the artwork whose ink you want to change.
2. Choose the ink you want from the Ink menu.

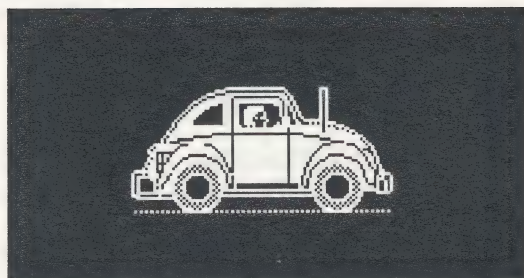
The artwork now has the ink you specified. In Step 1 you can select artwork on the Stage without opening the Score if you only want to change one frame at a time.

Note: In all cases, the ink you choose becomes the default ink and applies to all subsequent artwork you drag onto the Stage or animate in real time.

Useful Things to Do With Inks

Here is a table of useful and creative ways to use inks.

To do this:	Use this Ink:
To remove the white box from around artwork	Or, Matte and Mask will each eliminate the white box and keep the basic appearance of the artwork with various degrees of success. First try Or, because that takes up the least amount of memory. If that doesn't work, use Matte. If there is no solid outline around the object, you will need to use Mask.
To make artwork transparent	Use Or on the foreground art.
To see through holes in artwork	Use Mask. See the procedure "How to Create an Ink Mask" in the "Advanced Animation" section.
To reverse white and black	Choose Xor, choose black fill at the Draw menu, then draw a QuickDraw rectangle on the Stage over the artwork you want to reverse. Or choose NotXor, choose <i>white</i> fill, then draw a QuickDraw rectangle on top of the artwork you want to reverse.
To create a trail of artwork across the Stage	Use No Erase
Create a mysterious-looking ghost image	Use Bic



Car inverted with Bic

11. Importing Artwork

There are several ways to bring artwork into VIDEOWORKS II:

- Art Grabber+
- Scrapbook
- Clipboard

Art Grabber+ lets you bring in any artwork in MacPaint format. The Scrapbook and Clipboard let you bring in artwork in many other formats including PICT and text. Any artwork you can get into the Scrapbook or onto the Clipboard can be pasted into VideoWorks.

Note: When bringing art into VideoWorks, the easiest way to paste it is to *click on an empty position in the Cast* and then Paste. This is easier than creating a new Paint easel, dragging it open and pasting there. Pasting into the Cast will always work, while pasting large pictures into the Paint easel requires that you open the easel large enough to hold it.

Using Art Grabber+

This section decides how to use Art Grabber+ in VideoWorks

How to Grab Art Using Art Grabber+

To use Art Grabber+ to grab art from an existing paint document in MacPaint format:

1. Choose Art Grabber+ from the  Apple menu. The Grabber menu now appears at the right end of the menu bar.
2. Choose Open from the Grabber menu.
3. Find the document you want to open. If necessary, switch folders or drives:
 - Double-click on a folder to open it and view the files within it
 - Click Drive to switch drives
 - Click Eject to eject the current disk
 - Click Cancel to return to Art Grabber+ without opening a document
4. Click on the document you want to open and then click Open.
5. Move the pointer into the Art Grabber+ window – the pointer turns into crosshairs.
6. If necessary, scroll to the part of the document you want. Use the scroll bars along the side of the window. You can also use Show Page to see the entire document in a reduced view (where you can move the viewing window).
7. Select all or part of the image by pressing and holding the mouse button and then dragging diagonally across the image, until the selection rectangle encloses the image you want. When you reach the edge, the image will auto-scroll so that you can enclose the entire document if you wish.
8. Choose the Grab command from the Grabber+ menu. This copies the image onto the Clipboard. From there you can paste it into Paint or into the Cast window.
9. To close Art Grabber+, click the close box in the upper left corner of its window.

Result: You have copied all or part of a document to the Clipboard. At this point you can view the Clipboard, if you wish, to see just the selection you copied to it.

Viewing the Clipboard

To view the Clipboard, choose Clipboard from the Grabber menu. The contents appears in Art Grabber+. If the Clipboard is empty, nothing happens – the Art Grabber+ window continues to be displayed.

Importing a Group of Pictures

You may want to import sequences of artwork from 3D programs, digitizers and scanners. For instance, in Easy3D you could save individual rotated versions of an object, import them into VideoWorks and play them as a sequence, creating a rotated object in motion. Similarly, you can capture sequences from a video camera through a digitizer or from scanned artwork.

If you have a lot of artwork you need to import from another application, use the Scrapbook. For this procedure, see "Using the Scrapbook to Import Artwork," in the "Advanced Animation" section.

Grabbing Art from the Current Screen

Use **Command-Shift-3** to save the entire screen, as you literally see it, with the menu bar if it is visible (except without the cursor) as a MacPaint document. Each document is named in sequence "Screen 0", "Screen 1", etc. You can then grab this artwork using Art Grabber+.

Use **Command-Shift-6** saves any part of the screen as follows: Press Command-shift-6 (the cursor turns into a crosshairs). Draw a selection rectangle around the image on the screen that you want to capture. When you release the mouse button, the image is saved to the Clipboard. Then use Paste from the Edit menu to paste the image into the Cast or Paint window.

Using the Scrapbook

The Scrapbook is a desk accessory available at the Apple  menu. You can save frequently-used artwork, text, sequences and Film Loops in the Scrapbook. These are saved in a file named Scrapbook in the System Folder. The Scrapbook is not part of VIDEOWORKS II, but rather is a part of the standard Macintosh system.

Once the Scrapbook window is open, you can leave it open to transfer artwork to or from any VideoWorks window.

The Scrapbook is useful for:

- Copying artwork and animation from one movie to another
- Copying artwork from another graphics program to VIDEOWORKS II
- Storing artwork and animation for later use

Examples of all three cases are given under "Advanced Editing" later.

Typically, you might save artwork from the Paint or Cast window to the Scrapbook. Conversely, you can transfer artwork that was saved to the Scrapbook in another program to the Paint or Cast window. Likewise, you can transfer text to or from the Text window, or groups of cells to or from the Score.

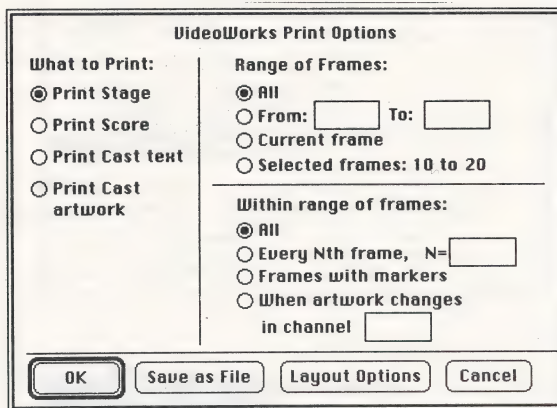
To copy artwork from the Scrapbook, scroll to that piece of artwork and choose Copy. You select the artwork in the Scrapbook merely by scrolling to it – you do not click on it as you may be accustomed to doing when you use Copy in other applications.

12. Printing in VideoWorks

In VideoWorks, the Print command lets you print frames of your animation full-size, 50% or 25%. You can print the current frame or any range of frames. Within that range, you can print frames in regular intervals, every marked frame, or only the frames where the castmember in a specified channel changes.

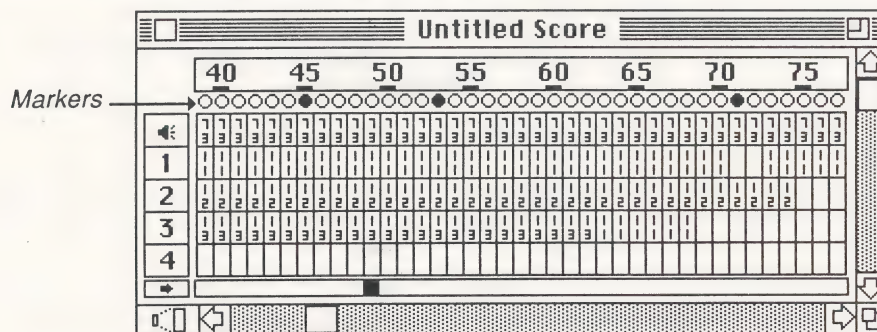
You can also print all of the text or artwork in the Cast, or print the Score window itself, as it appears on the screen, with all of its notation.

When you choose Print, the following dialog box appears:



What to Print – Specifies whether you want to print artwork as it appears on the Stage, the Score window itself, the Cast text or the Cast artwork.

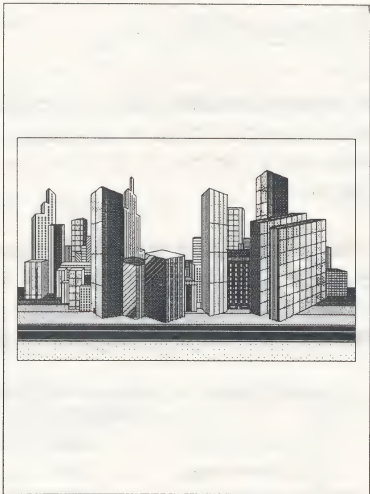
Frames with markers – Use this option to print frames that are marked. To mark frames, click on the round markers along the top of the Score.



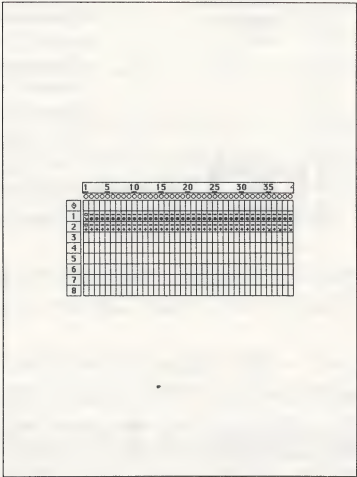
Markers for printing

If Printing Does Not Work.

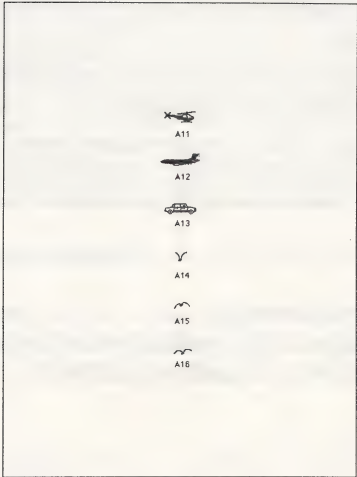
To print you must have the appropriate printer file (ImageWriter or LaserWriter) on your System disk. Check that the printer is selected in Chooser, and check the cables to make sure they are securely connected.



Printing the Stage



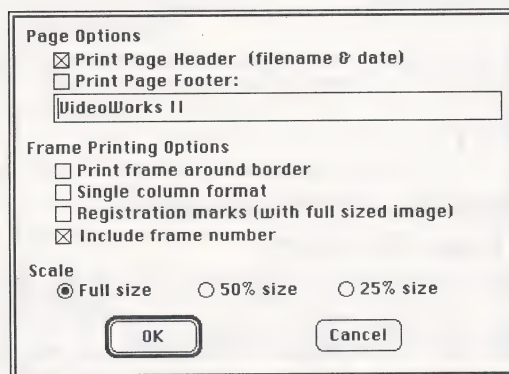
Printing the Score



Printing the Cast

Layout Options

Clicking on Layout Options brings up the dialog box shown below. The options are described earlier in the Overview Printing section of this manual.



The dialog box is titled "Page Options" and contains several sections of settings. The "Page Options" section has two checkboxes: "Print Page Header (filename & date)" which is checked, and "Print Page Footer:" which is unchecked. Below these is a text field containing "VideoWorks II". The "Frame Printing Options" section has three checkboxes: "Print frame around border" (unchecked), "Single column format" (unchecked), "Registration marks (with full sized image)" (unchecked), and "Include frame number" (checked). The "Scale" section has three radio buttons: "Full size" (selected), "50% size" (unchecked), and "25% size" (unchecked). At the bottom are "OK" and "Cancel" buttons.

Page Options

☒ Print Page Header (filename & date)

☐ Print Page Footer:

VideoWorks II

Frame Printing Options

☐ Print frame around border

☐ Single column format

☐ Registration marks (with full sized image)

☒ Include frame number

Scale

☒ Full size ☐ 50% size ☐ 25% size

OK Cancel

Layout Options Dialog Box

13. Advanced Animation

This section contains useful information for advanced users. These tips are divided into the following three sections (and are in no particular order within each section):

- Advanced Editing
- Advanced Art Techniques
- Advanced Animation Techniques
- Advanced Sound
- Analyzing Animation

At the end are some tips about "What can I do to improve my animation?"

Advanced Editing

Other Ways to Place Artwork

(Place On Stage Command)

We showed earlier how you can place artwork on the Stage merely by dragging it out from the Cast. There are two other ways to place artwork that power users might want to take advantage of, using the Place On Stage command in the Edit menu, and the -T shortcut.

- If the Cast is closed and you happen to know which castmember is currently selected in the Cast, use the Place On Stage command to place the castmember.
- If you have already selected the castmember you want, and for some reason have already positioned the pointer on the Stage exactly where you want the artwork, you can press -T. This places the artwork without losing your pointer position on the Stage.

In either case, the Place On Stage command operates as follows:

1. At the Cast, select the castmember you want to place.
2. Choose Place On Stage from the Edit menu or press -T.

This changes the pointer into crosshairs 

3. Move this crosshairs where you want the center of the artwork and click.

The currently selected castmember appears at the spot you clicked. You can actually do steps 1 and 2 in either order.

Note: If after step 2 you choose not to place art, you can toggle the crosshairs off by clicking the pointer tool at the right end of the Cast (or by choosing Place On Stage a second time). The crosshairs will return to the normal pointer.

Creating a New Document with the Same Cast

To create a new movie with the same castmembers of another movie (movie A), open movie A and **Save As** with the name for the new movie. Open this new movie and **Burn Scene**. The new movie has the same cast as movie A, but its Score is empty.

How to Move Artwork and Animation Between Movies

The easiest way to move artwork and animation between movies is to let VideoWorks do the work for you. When you copy a sequence in the Score from one movie to another, VideoWorks will automatically get all the castmembers that are part of that sequence, and paste them into the other file.

Note: For this to work, the file you are copying from must be saved on disk, because that is where VideoWorks will get the castmembers from. Also, if you want to store a sequence in the Scrapbook for any length of time see the warning below.

Another technique, is to paste items temporarily into the Scrapbook to move them between documents. This is described below:

To move artwork from one movie (Movie A) to another (Movie B):

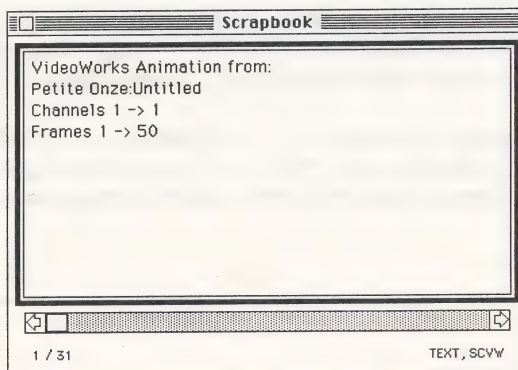
1. Open Movie A, the movie that you want to copy from. To copy artwork or animation from Movie A into the Scrapbook:
 - a. Select the artwork (in the Cast or in the Paint window) or the animation (any part of the Score) and choose **Copy**.
 - b. Open the Scrapbook and choose **Paste**. Repeat this process for each piece of artwork you want to move.

Note: When you paste a *block of cells* into the Scrapbook, the channel and frame numbers appear (as shown below), indicating the channels and frames in that block.

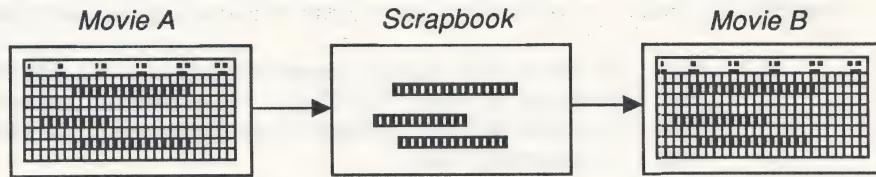
2. Open Movie B, the movie that you want to copy to. To paste artwork or animation from the Scrapbook into Movie B:
 - a. Open the Scrapbook, scroll to the artwork or animation you want, and choose **Copy** (this copies the artwork from the Scrapbook to the Clipboard).
 - b. Close the Scrapbook, open the appropriate window (Paint, Cast or Score), select a blinking insertion point and choose **Paste**. Repeat this procedure for each piece of artwork or animation you want to move.

The pieces of artwork in movie A are now copied to movie B.

When you paste cells into the Scrapbook, a message appears in the Scrapbook indicating the sequence, as shown in the following illustration.



The following diagram illustrates how you could copy several individual sequences to another movie. The Scrapbook is very useful for copying several sequences that do not appear in the Score as a block and for storing them for later use.



You can also use the Scrapbook to store movies temporarily. However, be sure to observe the important notice on "Storing Sequences in the Scrapbook."

IMPORTANT

Storing Sequences in the Scrapbook

The Scrapbook is a good place for storing artwork, sequences, and Film Loops. However, you must keep the following point in mind: When you Paste from the Scrapbook (or Clipboard), VideoWorks must access the original file for the Paste operation.

When you Cut or Copy cells from the Score to the Clipboard or the Scrapbook, VideoWorks copies all of the information about the animation except it *does not copy the castmembers*. It copies only a *reference* saying where to find the castmembers (which disk, folder, file and castmember position). When you Paste the cells into another document, VideoWorks must access the *original file* to get the castmembers.

When you have done a Cut or Copy, don't alter the original file before doing the Paste. Specifically:

- Don't move the castmembers from their original positions in the Cast
- Don't alter the name of the file or folder where the original castmembers reside
- Don't move the original file to another folder or disk

If you ignore these warnings, and perform the Paste anyway, the worst that can happen is that the new movie will have be using the wrong castmembers – the movie will no longer make any sense, but no damage will be done.

How to Use the Scrapbook to Import Artwork

Let's say we want to import artwork from another application, say Illustrator or Excel, to VideoWorks. This is especially valuable if you have lots of pieces of artwork to transfer. By using the scrapbook you won't have to close VIDEOWORKS II and go into Illustrator every time you want another piece of artwork.

This is basically the same procedure as described earlier in "How to Move Artwork and Animation Between Movies."

1. Open the application (Illustrator, Excel, whatever...) and create all the artwork.
2. Select the first piece of artwork and choose **Copy**. Open the Scrapbook and choose **Paste**. This pastes the artwork into the Scrapbook.

Repeat step 2 until all of the artwork is copied to the Scrapbook. When done, close the Scrapbook and application, open up VideoWorks, and do the reverse process, copying from the Scrapbook.

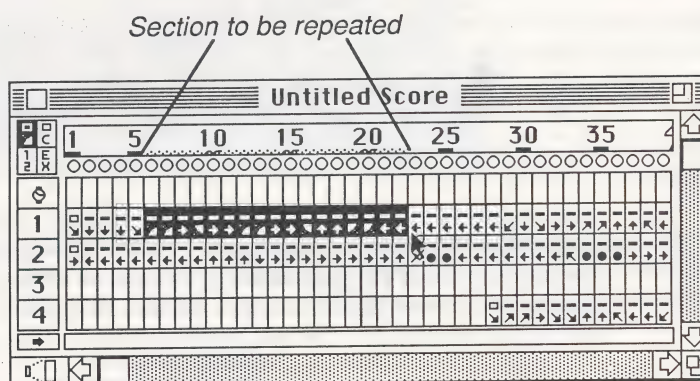
How to Repeat Just a Portion of a Movie

The Repeat Selection command lets you repeat a portion of a movie over again without having to see the entire movie. This comes in handy if you need to edit only part of a movie. Open the Score and select the frames to be repeated and choose Repeat Selection. When you play the movie, it will loop on the region you selected.

The Frame Counter in the Panel flashes to signify that Repeat Selection is on. Notice that a gray bar appears in the Score just below the frame numbers, to indicate which frames are being repeated.

To turn off Repeat Selection, choose Repeat All.

Control	
Play	⌘Q
Stop	⌘W
Rewind	⌘R
Step	⌘S
Back Step	⌘D
Repeat Selection	
✓Repeat All	
Left	⌘-
Right	⌘=
Up	⌘P
Down	⌘;
Short Menus	
Preferences...	



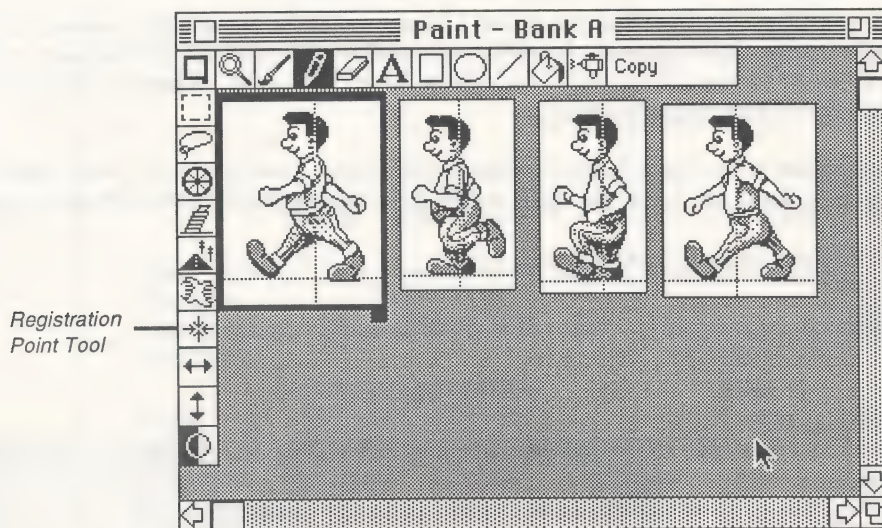
How to Set a Registration Point

To set a registration point:

1. Open the Paint window and select the artwork you want to adjust.
2. Click on the Registration Point tool  and then click on the artwork at the point you want to define as the registration point.

In effect, this point becomes the new "center" for this castmember. Its position on the Stage now centers around this point.

When creating a sequence, such as a person walking, where the motion needs to be smooth from one frame to the next, it can be difficult to position castmembers correctly the first time. This is especially true when you use Switch Castmember to replace one castmember with the next in the sequence because positioning is determined by the centers of the castmembers. For many things, such as circles and squares, the registration point is the center. But if this is not the case, you can either "eye-ball" their positions for each frame. or you can set a registration point.



NOTE:
The Registration Point is actually visible only on the active easel.

An example of the need for a custom registration point is in the "Walk the Dog" movie, included in the VIDEOWORKS II package. A good place for the registration point of the man walking is the intersection of the ground and a line drawn vertically through his shoulder. This point is not always in the same place for each cast member, so it is necessary to adjust it for each one. Using this feature assures that the man won't seem to stretch, but will move smoothly.

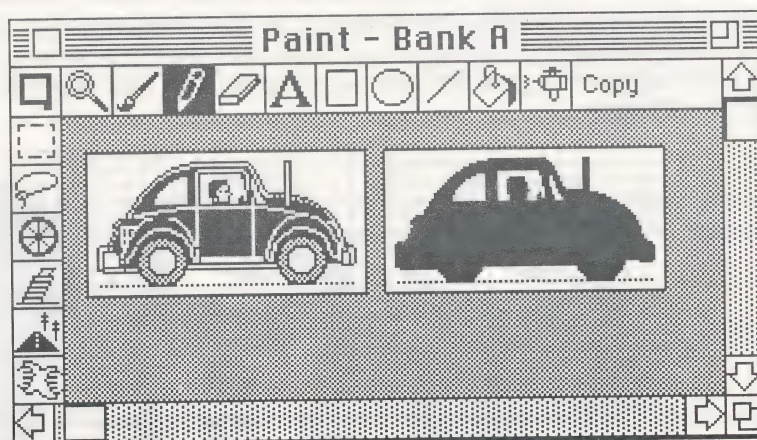
Note: If you would like to get rid of the previously set registration points so that they are automatically set in the center of each cast member, just select the Registration Point tool, click inside the easel and drag outside. The registration point will automatically be set in the center. You must do this for each castmember.

A good way to set the Registration Point for a sequence is to use Repeat Selection (see next section), and adjust it while watching the animation loop.

How to Create an Ink Mask

An ink mask lets you specify which parts of a piece of artwork are opaque and which are transparent. This is useful for seeing through a car window, or for seeing through the center of a donut. You can sometimes get the effect you want with the Or ink mode, but this gives you much finer control.

To create an ink mask, you need to prepare two castmembers: the original artwork and its mask. For a car with shiny fenders, these would look like this:



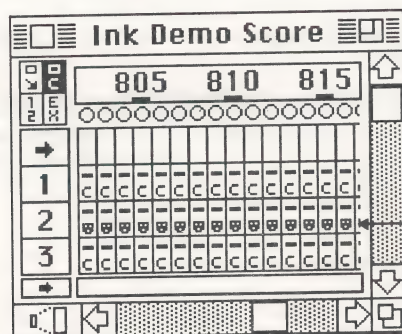
Original of car (on left) and mask (on right)

Start with the original castmember in the Cast and an *empty* Cast position immediately following it. (This empty position will be for the mask.)

1. Click on the original castmember in the Cast and choose **Copy Cast**. Click on the Cast position *immediately following* it and choose **Paste Cast**.
2. Open the Paint window and use the Paint Bucket or Paintbrush to fill in the artwork, making it black wherever you want the artwork to be opaque. Leave white where you want the white part of the artwork to appear as a hole, letting the background show through. Do not paint outside the outer outline, or you will create a ghost effect, that resembles a Bic ink.

The black part of the does not allow white areas in the car to be transparent. The white part of the mask allows white areas of the car to be see-through. Since there is a hole in the mask for the window, the background will show through it.

3. In the Score, select the original castmember wherever it appears, and apply the Mask ink to it from the Ink menu. (The mask castmember never appears in the Score, and so never needs the Mask ink applied to it.) These channels will appear with a mask symbol as shown below.

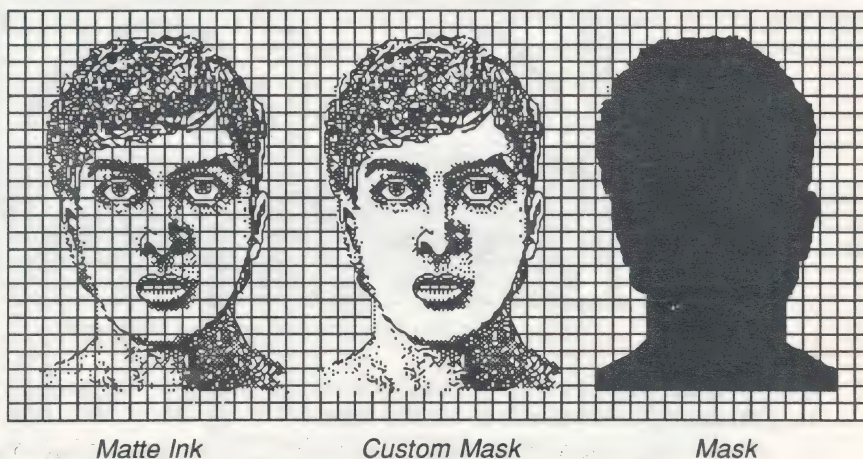


Mask mode is represented by a little masked face

Note: The relative positions of the artwork and mask within their Paint easels is important, which is why we recommend creating a mask by copying from one Cast position to the next. Do not create the mask by making a new easel in Paint and using the Selection Box to Copy and Paste.

Making an Ink Mask for Artwork That Has No Outline

Another situation where an ink mask is useful is when you have artwork that has no definite, hard outline, or where the outline has holes in it, such as the illustration of the face. Such is the case with artwork that is created with the Airbrush. The face appears transparent if you use Matte ink. To prevent this, use a mask the same shape as the face. The mask will keep the background from showing through.



Returning Artwork on the Stage to its Original Size (Normal Size Command)

As we learned earlier, you can stretch or shrink any artwork by grabbing one of its handles. If at any time you want to return a piece of artwork exactly to its original size, just select the artwork and choose Normal Size from the Edit menu.

It's possible to change the size of artwork by mistake by grabbing one of the handles when you only meant to move it. Sometimes you might resize it by such a small amount that you don't even notice it, except that the animation slows down when you get to a certain frame. If you change the artwork back to normal (unscaled) size, the animation will run smoothly without slowing down there.

Advanced Art Techniques

Creating a Sequence of Artwork

Here are some tips for drawing a series of art. Let's assume you've already drawn the first piece of artwork, such as a man taking a step. If you want the next piece of artwork to be only a slight modification of the first piece, it would probably be easiest to make a copy and modify that, as follows.

Pasting from One Cast Position to Another – To quickly copy a piece of artwork, go to the Cast, select and Copy the artwork, select an empty position in the Cast, then Paste. (If you need to, you can Paste into several empty positions in the Cast.) The artwork appears on a new easel in the Paint window. This is possible because the Cast is just a different way of viewing the Paint window.

Once you have copied the artwork, go into the Paint window and modify each of the pieces to create the sequence. Don't forget that you can use Rotate, Slant, Distort and Perspective to modify each piece.

How to Combine Several Pieces of Art into One Full-Screen Background

Use this procedure if the background art on the Stage is composed of two or more pieces, and you would like to combine them into one piece. (Since it is cumbersome to create a full-screen background in Paint, you can create several small pieces, then use this procedure to make one full-screen background.)

This procedure uses the standard Macintosh function Command-Shift-3 to save any screen to disk, then imports that screen using Art Grabber+:

1. Arrange the art on the Stage as you want it captured.
2. Choose Stage from the Window menu to remove all of the windows and show the artwork full-screen.
3. Press **Command-Shift-3**. This saves the entire screen to disk as Screen 0. (If a file named Screen 0 already exists, the new file is named Screen 1.)
4. Choose Art Grabber+ from the Apple menu.
5. Choose Open from the Grabber menu at the right end of the menu bar. Open Screen 0. (If you have a hard disk, look in the root directory or the VideoWorks folder for this file.)
6. Now select Screen 0 by dragging diagonally across it with the crosshairs. Then choose **Copy**.
7. Close Art Grabber+. Click on an empty position in the Cast and choose **Paste**.

The full-screen artwork is now saved as a castmember in the Cast. You can drag it out onto the Stage to use as a background. The new picture is a single picture. But it's also probably larger than the original separate elements.

Advanced Animation Techniques

How to Create Scrolling Text

Scrolling Text is a powerful animation effect that is used a lot in television and film. You can easily create scrolling text in VideoWorks as follows:

1. Create the text as artwork in the Paint window (using text from the Text window generally scrolls too slowly). Use the largest Fonts that you have available, and remember that you can choose from many different Styles and Sizes, as well as using special Inks.
2. Use the procedure described under "How to Make Artwork Move Smoothly Between Two Points" in the "How to Animate" section.

Note that Tutorial #7 - Point Of Purchase Display has several examples of scrolling text, illustrating different techniques.

How to Create an Animation that Draws Out Letters

This technique lets you create a movie that draws out pen strokes before your very eyes. You can use it to show your signature (or any cursive handwriting) being drawn out smoothly, stroke-by-stroke, exactly as you have signed it.

1. Draw a large dot in Paint. (This will be the tip of your writing pen, so its size will determine the thickness of the stroke. You can even put a drop shadow on this dot, to make the word have a drop shadow.)
2. Choose **No Erase** and **Matte** and turn up the speed to maximum.
3. Draw your message using Real-Time Recording *without releasing the mouse button* until the very end of each stroke. By stroke, we mean each time you lift your pen. The word "hat" would be two strokes – the second stroke is needed to cross the "t". Each stroke is automatically drawn in a separate channel.

When you play back this movie, it draws out your name exactly as you entered it, from beginning to end. (You need a fast frame rate for a solid line – a slow frame rate will generate a dotted line.)

If you can't afford using so many channels, you can put all of the words in one channel, but it is tricky. Any blank cell will erase the previous No-Erase text from the Stage.

This technique can be good in a presentation, for it generates suspense as the word is being drawn out and slowly becomes recognized.

Speeding Up or Slow Down a Sequence

To speed up (or slow down) an isolated sequence in the middle of a movies, remember that you can add a Tempo setting in the Score. If that doesn't give you the effect you want, you can also adjust the number of frames with the **Delete Frame** and **Insert Frame** commands.

In some cases, to make a less-abrupt change, it is helpful to insert or delete every other (or every third) frame. If the action is of a single castmember moving on the Stage, you can use **In-Between** to smooth the transition. You can also use Delete Frame and Insert Frame to create or remove a slight pause in the animation.

How to Switch a Moving Piece of Art

You can take *any* sequence of art and replace it with any single castmember. This is useful, for instance, when you have artwork moving around on the Stage and you want another piece of artwork to move along exactly the same path. Copy & paste the original sequence before you do the steps below.

1. Open the Score and select the sequence of art you want to replace by dragging across it.
2. Click on the new castmember in the Cast that you want to appear on the Stage and choose Switch Castmember from the Edit menu.

The sequence that you selected is now gone and the new castmember is in its place, moving along the same path the old castmember had.

Inserting Many Blank Frames in the Middle of the Score

Using this procedure, you can insert a hundred or more blank cells into the middle of a movie in one stroke, to give you room to add an entire sequence.

1. Open the Score and move past the right end of the movie, out where there are empty cells.
2. Drag the pointer across the frame numbers to select as many empty frames as you want to insert. Choose **Copy**.
3. Move the pointer to the middle of the movie where you want to insert these empty cells. Select an insertion pointer (blinking cursor) by clicking on the frame number at the top of the Score.
4. Choose **Paste**.

The empty cells are inserted at the selected frame, pushing the existing cells out to the right. This method does *not* paste over any existing cells.

Accentuating a Motion

Artwork has implicit *registration*. If you want to accentuate a motion or re-locate an object on Stage, you can do so by altering the registration of that artwork with the Registration Point tool in the Paint window.

For example, to make a frog jump a little bit higher in its five-frame sequence, you could open up the Paint window and change the registration point of the middle of the five pieces of art. If you move the registration point down, that would become the new center of motion, and the frog would jump higher on the Stage.

Advanced Sound

Sampled Sounds ("Real" Sounds)

With special hardware, you can use a microphone to record any sound and store it on a Macintosh disk for use in VideoWorks. This kind of sound is uncanny in its realism—you can record the actual sound of your own voice, or a door-slam, or any sound effect you can get on tape or into a microphone. When you play it back in VideoWorks, it sounds very realistic, like the original sound. Someone else could even recognize that this is your voice. (Macintalk, in comparison, sounds like a computer speaking.)

Keep in mind, however, that digitized sounds take a lot of memory, so you can only get a few seconds for any given sound. The better the quality, the more space it takes up.

The software required to bring the sound into VideoWorks is called **Sound-to-Video**. This will be on one disk which is part of the M.U.D. II (MacroMind Utility Disk) series of utility disks, which will be available in the Fall of 1987.

The Sound-to-Video program takes the digitized sound file produced by the Impulse MacNifty Sound Digitizer and let's you add it to the VideoWorks Sounds file. This sound shows up as a new menu item in the Sound menu called "Sampled Sounds". You can add up to eight sampled sounds to the menu (each one up to 32K in size) in one VideoWorks Sound file. For more information, write:

Impulse Sound Digitizer
Kette Group Inc.
13895 Industrial Park Blvd
Minneapolis, MN 55441

or call: 800-328-0184

MusicWorks to VideoWorks

MusicWork produces synthesizer sound. This kind of sound does not take up as much memory as sampled sound. You use the **Music-to-Video** program to move a melody from MusicWorks to the Sound menu in VideoWorks. This program will be available from us later in 1987 as part of our M.U.D. II series of utility products. You can add up to four new menus in the Sound menu with 16 melody lines each.

Adding Color

If you are fortunate enough to be the owner of a Macintosh II, you can include color in your animations. You can add colors to artwork in the Paint window and to QuickDraw shapes on the Stage.

The Color command is dimmed in VideoWorks unless you have a color Macintosh — the Macintosh II with a color card and monitor. To set up for color, go to the Control Panel in the Apple  menu, select the Monitor icon, then select either 16 or 256 colors. (You can do this while you're in VideoWorks.) If you leave the Color window open, you can see the colors change immediately.

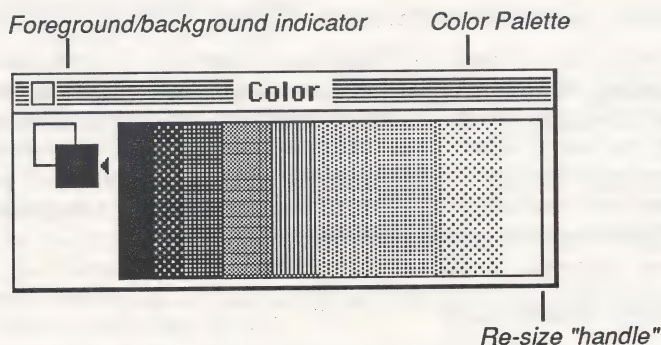
Selecting Colors in the Color Window

When you choose Color from the Window menu, a color palette appears (shown below in black and white). You then click on the foreground/background indicator to choose one or other, then

click in the color palette to choose a color. If you pull down the Draw menu, you will see the colored patterns available to you.

Note: Be aware of which window is in front. When clicking a color in the color palette, it can have either of two effects. The color applies to Paint tools if the Paint window is in front. If any other window is in front, the color applies to QuickDraw shapes selected on the Stage or in the Score.

Some of the paint tools work in color: the Pencil, brushes, Paint Bucket and filled shapes. Transitions and some paint tools, notably Lasso and Selection Box (marquee) are disabled when using color – they will be coming in later versions.



Note: You can *resize* the Color window. This is not readily apparent, since it has no scroll bars or resize box. You have to first bring the color window to the front by clicking on the title bar. Then grab the lower right corner of the window and drag it larger or smaller.

Using Color Inks

All of the inks fall into two categories, regular inks and color inks:

Regular inks:	Copy, Matte, Or, Xor, Bic, NotCopy, NotOr, NotXor, NotBic, Mask.
Color inks:	Average, Minimum, Maximum, Add, Add Pin, Subtract, Subtract Pin.

All of the *regular* inks work with color like they do with black and white, with more effect on the pattern than the color. The *color* inks affect color. As is true of applying colors, you can apply color inks to either the Paint window or a selection on the Stage or in the Score (either bitmap or QuickDraw). To create color text, use the Paint window, not in the Text window.

Average is good for mixing colors to get a watercolor affect. Each of the red, green and blue components is averaged separately. That is, the red component of the color you are applying is averaged with the red component of the color that is already there. The same goes for green and blue.

Minimum is good for colorizing black and white artwork. All of the white areas will be colored while the black areas will be left alone.

Maximum is also good for colorizing black and white artwork. All of the black areas will be colored while the white areas will be left alone.

Add is good for making colors lighter, but at some point they wrap around to darker colors. Experiment to see this effect.

Add Pin is better for making colors lighter, because the colors go to white as a maximum. ("Pin" means the value "pins out" at the highest value and does not wrap around to darker colors.)

Subtract is good for making colors darker, but at some point they wrap around to lighter colors. Again, experiment to see this effect.

Subtract Pin is better for making colors darker, because the colors go to black as a minimum. ("Pin" means the value "pins out" at the lowest value and does not wrap around to lighter colors.)

Transparent is good for making artwork appear transparent. This is good for doing a "pseudo-matte" where anything white in the image lets the background shine through.

Memory Considerations When Using Color

When you create a bitmap in VideoWorks either with the New Easel tool in Paint or by pasting into the Cast, that bitmap will be converted automatically to the *current* color resolution. (The color resolution is set in the Monitor icon of the Control Panel.) This means that bit-map artwork you make while using 256 colors (8 bits of color resolution) takes 8 times as much memory (and disk space) as its black and white equivalent. It also means that if you switch to a different color resolution, the artwork does not change its resolution. It's only when artwork is created that the current resolution is set.

Display Monitors

We have tested VideoWorks and found it to work with the following display monitors (as of June 1987):

NEC Multi-Sync, SuperMac Spectrum and Apple color monitor

We will make every effort to test VideoWorks with new monitors as they become available.

Analyzing an Animation

How to Dissect an Animation

Here are some ideas about how to analyze an animation:

1. Double-click on the artwork to open up the Paint window and make that piece of art come to the front. Look in the Score to see which castmember number it is and what ink is being applied. Inks often give clues to how tricks are being done. Find the artwork in the Cast by its castmember number.
2. Look at foreground priorities in the Score, see how the artwork fits into a sequence, and how it moves in that channel.
3. Look at the extended display in the Score (the fourth Display Button) for more details.
4. Double-click on the artwork on the Stage to open the Paint window and bring the art to the front. Use Fatbits to magnify it.
5. Look in the Score to see whether QuickDraw shapes are being used (use the third button, the Castmember button), and if so, which pattern and ink is applied to it.

What can I do to improve my animations?

Try these suggestions

Give your background three-dimensional perspective rather than two-dimensional.

Create sequences of art rather than just moving the same piece of art from here to there.

Try thinking of yourself as a cameraman with ability to:

- Start wide-angle, showing the entire scene.
- And then zoom in to inspect minute detail.

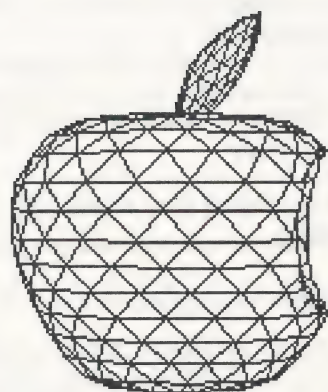
Also think of yourself with the ability to fly or move absolutely anywhere. Consider how you might show someone driving their fast T-Bird convertible using these camera techniques.

- Panning – (The camera stands on a tripod on the ground.) The car approaches the camera, speeds by and off into the sunset.
- Trucking – (The camera is mounted in a truck travelling along with the moving car.) Unlike panning, the car stays the same relative size, but the background races past.
- Craning – (The camera moves up off the ground and swings in any direction.) The car can be seen from above or from any angle.

Make your picture tell a story. Give it a beginning (boy meets girl), middle (they get to know each other), and ending (they get married).

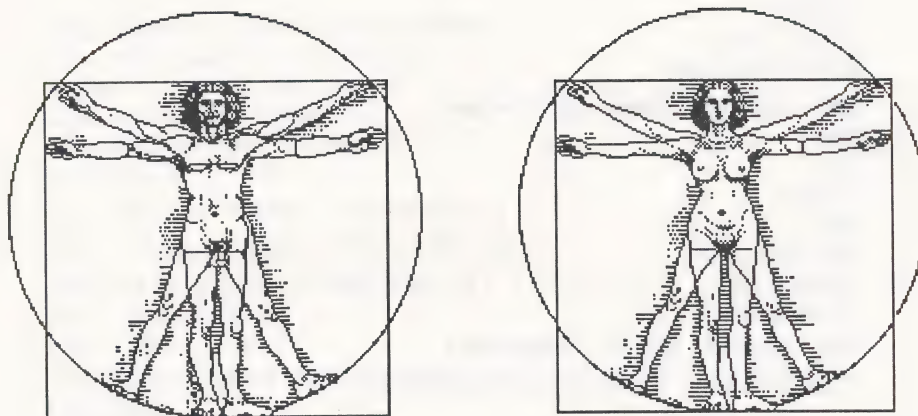
Notice that animations fall into two classes:

- Non-sequenced animations – Each object moves about on-Stage but does not change shape. For instance, a person driving a car does not move his head, arms or eyes. This is the easiest kind of animation – beginners at animation sometimes do not get beyond.
- Sequenced animations – Objects have moving parts. For example, the person driving a car has arms that move, a head that turns, or eyes that blink.



VideoWorks II

Reference



This part of the manual is the directory of all commands and windows in VideoWorks II. It is divided into two sections, Overview Reference followed by VideoWorks Reference. These two sections are organized according to the way you view VIDEOWORKS II – by menus and windows. The explanations here are brief. You should refer to the previous part "How to Animate" for more in-depth description.

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218	The Edit Menu (VideoWorks)
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220	Paste
220	Paste Relative
220	Clear
221	Insert Frame
221	Delete Frame
222	Switch Castmember
222	In-Between
222	Burn Scene
223	Blank From Stage
223	Place On Stage
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224	Reverse Sequence
224	Normal Size
225	The Control Menu (VideoWorks)
225	Play, Stop, Rewind, Step, Back Step
226	Repeat Selection, Repeat All
226	Left, Right, Up, Down
227	Short Menus / Long Menus
227	Preferences...
228	The Sound Menu (VideoWorks)
229	The Window Menu (VideoWorks)
230	The Text Menu (VideoWorks)
230	Font, Size, Style
230	Left, Center, Right
231	The Draw Menu (VideoWorks)
231	Line Widths
231	Fill Patterns
232	The Ink Menu (VideoWorks)
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236	Panel
238	Cast
240	Score
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Hierarchical Menus – VIDEOWORKS II is designed to take advantage of the Macintosh System 4.1 hierarchical menus. The Sound menu takes advantage of this. The exact differences are described under the Sound menu. There is no difference in function between System 4.1 and earlier systems. System 4.1 is merely more convenient to use.

Command Key Shortcuts – Command key shortcuts are shown to the right in the menus. For example, the shortcut for Open is -O.

Dialog Boxes Shortcuts. When a dialog box appears, there are several shortcuts you can use.

Open – When you choose Open, the Open dialog box appears. Pressing a letter key selects the document starting with that letter. This works going up or down the list.

Yes/No/Cancel – when a dialog box appears that says "Do you want to Save Changes" you can simply press the first letter of each command: Y for (Yes), N for (No) and C for (Cancel).

Overview Reference

This section of the manual covers the Overview part of VideoWorks II. (The VideoWorks Reference follows this part.)

This reference contains all Overview features, divided into two sections:

- Overview Menus
- Overview Windows

Notice this reference is organized according to the way you *view* Overview – by menus and windows rather than how you *use* it. The explanations here are brief. You should refer to "How to Animate" for a more in-depth description. The basic concepts are also covered in the Tutorials.

Overview Menus

This section describes the menus available in the Overview part of VIDEOWORKS II. The  Apple menu is the same in both VideoWorks and Overview.

The Apple Menu (Overview)



The Apple menu is indicated by the  symbol at the left end of the menu bar. This menu is identical in both VideoWorks and Overview—it is described fully in the VideoWorks Reference which follows.

The menu items described there are About VideoWorks, Help, Art Grabber+ and the Scrapbook. The other menu items are the standard Macintosh desk accessories, described in your Macintosh manual.

The File Menu (Overview)

File	
To VideoWorks	
New	
Open...	⌘O
Save	
Save As...	
Revert	
Launch Editor	
Return to Overview	
Page Setup...	
Print...	
Quit	

The File menu contains commands for creating, opening, saving and printing Overview documents. It also lets you launch other programs.

You can have only one Overview document open at a time.

To VideoWorks

The "To VideoWorks" command closes the Overview document and opens VideoWorks.

This command is to be distinguished from selecting a VideoWorks document in the Overview window and choosing Launch Editor. This second method gets you into VideoWorks, while keeping the current Overview document open.

For more information on the To VideoWorks command, see the "Moving Between Overview and VideoWorks" section of "How to Animate".

New

The New command opens a new Overview document. The document opens Untitled. It does not need a name until you Save or Quit – at that time you will be asked to type in a name for this document.

Overview can handle only one document at a time, so if a document is already open when you choose New, a dialog box is displayed, giving you the opportunity to save or discard the latest changes.

Open...

The Open command lets you open an existing VideoWorks or Overview document from disk. When you choose Open, a dialog box appears. Click the buttons to choose which type of document you want to display. Then select the document and click Open.

If you want a document from a different drive, click Drive. If you want to insert a new disk, first click Eject to remove the current disk. To return to Overview without opening a document, click Cancel. Command key shortcut: ⌘-O

Save

The Save command saves the current document to disk. The current version replaces any previous version on disk. Once a document has been saved, you can quit Overview without losing that document.

Save As...

The Save As command allows you save the current document to disk under a different name, or under the same name but to another folder or drive.

Revert

The Revert command returns the last saved version of the current document to the display. It does this by discarding the currently displayed version and opening the one from disk.

Launch Editor

The Launch Editor command launches VideoWorks, MacPaint, MacDraw, or the Glue Viewer, or another level of Overview. You use it by clicking on the document in the Overview window that you want to launch, and choosing Launch Editor. When you quit that application, you will be returned to the current Overview document, just as you left it. For a better description of this process, refer to "Moving Between VideoWorks and Overview" at the end of the "Working with Overview" part of "How to Animate."

Return to Overview

The "Return to Overview" command is used to return you to Overview when you have launched an Overview document from Overview. For a better description of this process, see "Moving Between Overview and VideoWorks" at the end of the "Working with Overview" part of "How to Animate."

Page Setup...

The Page Setup command offers options for determining how a page is to be printed. You are offered different page sizes and other options depending on your printer. The Apple LaserWriter also offers reduction/enlargement, smoothing, and font substitution.

Print...

The Print command lets you print slides of your presentation. You can print the first slide of each column or any range of columns, at full size, 50% and 25%. You can also print the arrangement of icons as it appears in the Overview window. With each printout you can include the name of the document, the date, and the frame number. For more details, see "Printing in Overview" in "How to Animate."

Quit

Choosing the Quit command exits Overview and returns you to the desktop. Use this command when you are through using Overview. The Clipboard is saved when you quit, and its contents can be used by another program. If you have not saved the most recent changes to the current document when you choose Quit, Overview will ask you if you want to save those changes.

The Edit Menu (Overview)

Edit	
Undo	⌘Z
Cut Overview	⌘H
Copy Overview	⌘C
Paste Overview	⌘V
Clear Overview	
Select All	
Get Info...	⌘I
Quick Create...	
Gather Documents...	

The Edit menu contains commands for editing the Overview presentation.

Undo

Undo reverses your last action. Since it works only on your *last* action, you must use it right after a mistake, before making any other change to the animation. Undo works with most editing operations, such as Cut Overview. It does not work with File commands, such as Open.

Command key shortcut: ⌘-Z

Cut Overview

The Cut Overview command removes the selected icons in the Overview window from their current location and places them on the Clipboard. You can then use Paste to move them to another location. Use Cut Overview and Paste Overview to *move* art (rather than to copy it).

To cut artwork from the Stage, open the Score, select the cells and choose Cut Overview. Cut Overview does *not* operate directly on selected artwork on the Stage. To clear artwork from the Stage, use Blank From Stage. Command key shortcut: ⌘-X

Copy Overview

The Copy Overview command makes a copy of the selected icons in the Overview window and places that copy on the Clipboard. Unlike the Cut Overview command, Copy Overview does not remove the selected icons from their original location. Use Copy and Paste when you want to duplicate icons, rather than move them. Command key shortcut: ⌘-C

Paste Overview

The Paste Overview command is used to copy the icons currently on the Clipboard into the currently selected location in the Overview window. You specify where you want the Clipboard contents to be pasted by clicking with the pointer before choosing Paste Overview. You use Paste Overview in conjunction with Cut Overview and Copy Overview, described above. Command key shortcut: ⌘-V

Clear Overview

Clear Overview removes and discards the selected icons from the Overview window (without saving them on the Clipboard). Clear is used when you have no further use for the icons, and when you do not want to affect the contents of the Clipboard.

Select All

The Select All command selects all of the icons in the Overview window.

Get Info...

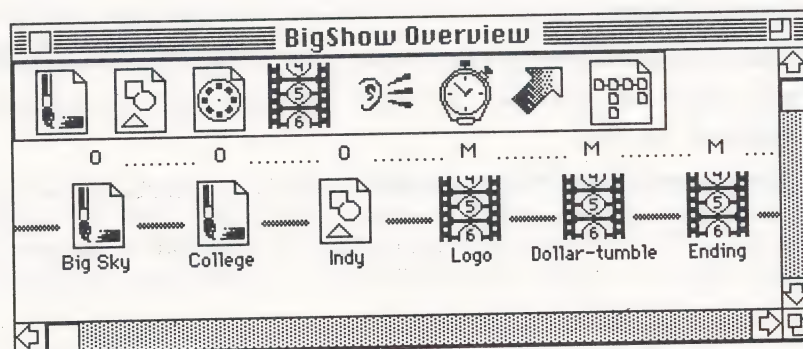
The Get Info command lets you set how the current document is displayed in the presentation. Get Info works with VideoWorks, MacPaint, Glue and PICT documents, and Transitions. For more details, see "Working with Overview" in "How to Animate." Command key shortcut: **⌘-I**

Quick Create...

The Quick Create command takes all documents from a folder and places them in the Overview window, arranged in one long row. To use this command, first choose Quick Create. When the dialog box appears, select any document (in any folder) and click Open. All of the usable documents in that folder will be opened and placed in the Overview window. This includes MacPaint, PICT, Glue, VideoWorks and Glue documents. This is a quick way of moving a lot of documents into the presentation, for watching a long list of movies.

Gather Documents...

The Gather Documents command moves all documents in the current presentation into the same folder. This is useful if you use a hard disk and your documents are scattered around in different folders. You would use this command if you wanted to gather the documents together so that you could, for example, make a copy of the presentation so that you could run it on another system. (Remember that to copy an entire presentation, it's not enough to copy the Overview document itself – you must also copy the documents along with it.) For example, for the presentation below, titled "BigShow," the documents "Big Sky," "College," "Indy," etc. would all be moved into the folder along with "BigShow."



The Control Menu (Overview)

Control	
Play	⌘Q
Stop	⌘W
Rewind	⌘R
Step	⌘S
Back Step	⌘D
.....	
✓Sound Is On	
✓Preferences...	

The Control menu contains commands that control how a presentation plays back. These commands do not modify the presentation itself.

The following five commands appear in this menu and also in the Panel as buttons.

Note: These five commands are further described in the "Controlling an Overview Document" in the "Working with Overview" part of "How to Animate." That section describes their other keyboard equivalents.

Play

Play starts the presentation. The Command key equivalent is ⌘-Q. If you hold the Shift key down when you hit Play, the Overview window closes and the presentation begins.

Stop

Stop halts the presentation. The Command key equivalent is ⌘-W.

Rewind

Rewind winds the presentation back to the start. The Command key equivalent is ⌘-R.

Step

Step advances the presentation to the next column. Step is further described in "Controlling an Overview Document" in "How to Animate." The Command key equivalent is ⌘-S.

Back Step

Back Step steps the presentation backward one column. The Command key equivalent is ⌘-D.

Sound Is On

This command turns the sound on and off.

Preferences...

The Preferences command displays a dialog box which gives you the following choices.

Note: Preferences are saved only when you Quit to the Finder.

Coordinates for the Stage Window (This option is of interest if you develop presentations on a large screen destined to be played on a smaller screen, or if you simply want to change the Stage size.) When you create a document, the Stage is automatically made to fit full-screen for the monitor connected. At any time you can change the Stage size. You might do this if you were developing a presentation on a large-screen monitor and you wanted to fit it onto a Macintosh Plus screen.

In this case, the screen size is important, because if you were to take a presentation that fills up a 13" monitor and play it back on a 9" MacPlus screen, the right and lower edges of the presentation would not be visible.

You can change the values for the four edges of the Stage at any time by:

- Clicking on the MacPlus or Mac II buttons.
- Typing numbers into the four boxes (Top, Left, Bottom, Right). The values are the number of pixels from the top and left edges of the screen.

The MacPlus size is the same standard size as the Macintosh SE, Macintosh 512E and 512. The Mac II size applies to both the color and the black & white Apple monitors.

Note: If you want to become more familiar with different Stage sizes, just experiment. For fun, type in numbers 50, 50, 300, 500. You'll find that the Stage has a title bar!

Freeze Stage Window at Current Size – (This option applies to you if you have a screen size larger than the standard MacPlus.) If you select the Freeze Stage Window box, the Stage is frozen at the (large) size you currently see it displayed, even if you open a document that was created on a smaller screen. Let's explain this.

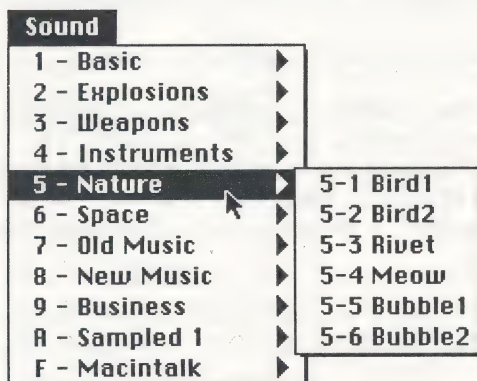
The Stage size is stored with each document. If you open a document that was created on a smaller screen, and you have *not* checked Freeze Stage Window, the document will be displayed with its original, small Stage size. If you check Freeze Stage Window, the Stage size will not change when you open the document.

As you would expect, when you save a document, it is saved with its currently displayed Stage size.

Creator Type for MacPaint, MacDraw – You can specify which document you launch into from a MacPaint or PICT (MacDraw) document. For example, you could launch into GraphicWorks instead of MacPaint, or MacDraft instead of MacDraw. To determine the creator type use ResEdit (a Resource Editor). Do a Get Info in ResEdit on the application you want to use.

Autosave of Overview Documents automatically saves the current Overview document each time you launch VideoWorks. Choosing this option makes it quicker to go from Overview to VideoWorks, since the dialog box no longer appears asking you if you want to save changes.

The Sound Menu (Overview)



The Sound menu contains dozens of sounds you can add to your presentation. This menu is identical to the Sound menu in VideoWorks.

Sounds come in several basic categories:

- Music (Old Music, New Music, Instruments)
- Effects (Basic, Explosions, Weapons, Nature, Space)
- Presentations (Business)
- Computer speech (Macintalk)
- Real sounds (Sampled sounds)

In Overview, you can assign sounds to slides by dragging out the Sound icon: 

System 4.1 vs. Earlier Systems; We have provided System 4.1 with VIDEOWORKS II in order to take advantage of its hierarchical menus. System 4.1 is simply more convenient to use – there is no loss of function when using an earlier system. For an explanation describing how to use the earlier submenus, see the Sound menu description later in "VideoWorks Reference."

For more information on:

- Sounds....."How to Add Sound" in "Working with Overview"

See "How to Animate":

The Window Menu (Overview)

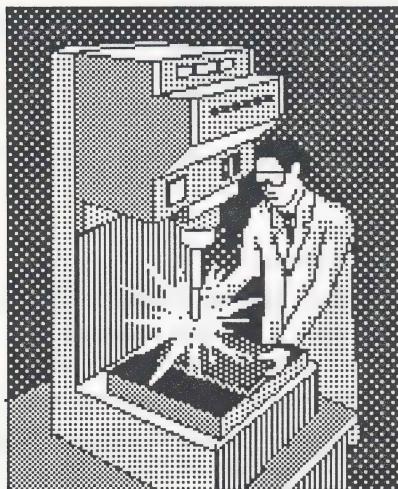
Window	
Stage	⌘1
✓Panel	⌘2
✓ <u>Overview</u>	⌘3

The following is a description of how the commands in this menu open and close windows. The windows themselves are described in detail in "Windows (Overview)," the next section of this manual.

Stage, Panel and Overview are the three windows in Overview. When one of these windows is open, a check mark appears next to it in the Window menu. The item that is underlined in the menu is the currently active window.

To illustrate how these commands work, let's use the Overview command as an example. Choosing the Overview command changes the window to its next state in a cycle.

- If the Overview window is open but inactive, choosing the Overview command makes it active.
- If the Overview window is active, choosing the Overview command closes it.
- If the Overview window is closed, choosing the Overview command opens it.



Overview Windows

Overview has three windows. This section describes each briefly.

- Stage
- Panel
- Overview window

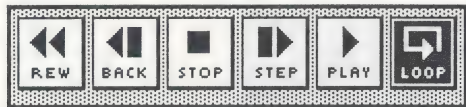
The Stage (Overview)

The Stage is the full-screen window where you view the Overview presentation. All other windows (Panel, Cast, etc.) appear in front of the Stage. To get a full, uncluttered view of the presentation, choose the Stage command at the Window menu. It clears the screen of all the other windows and the menu bar. Selecting the Stage command again returns all previously displayed windows to view. The Stage in Overview is the same as the Stage in VideoWorks.

The shortcut for the Stage command is $\mathbb{H}$ -1. When you are creating an animation, use $\mathbb{H}$ -1 to quickly toggle back and forth between the uncluttered Stage and the working windows. When the Stage is cleared of other windows, you can add the Panel and Overview window one at a time simply by choosing them from the Window menu.

The menu bar is active even when it is invisible, when you are watching a movie. You can move the (invisible) pointer to the top of the screen and press the mouse button, and the menus will actually pull down. (Try it!)

The Panel (Overview)



The Panel has six controls on it. These can also be accessed by commands at the Window menu.

Play starts the presentation.

Stop halts the Overview document.

Rewind winds the presentation back to the start. If the presentation was running, it stops.

Step advances the presentation to the next column. Step is further described in "Controlling an Overview Document" in "How to Animate."

Back Step steps the presentation backward one column at a time.

Loop causes the presentation to repeat continuously, when it reaches the end, it continues with frame 1. Loop is in effect when the button is black. Clicking the Loop button alternately activates and deactivates Loop. (This is known as a toggle.)

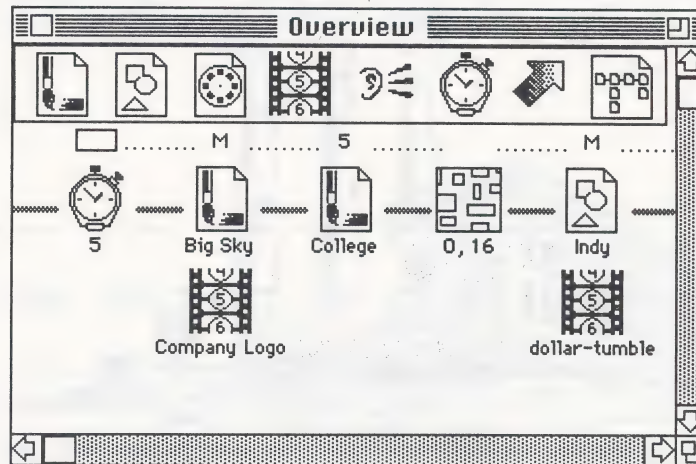
You can move the Panel around on the Stage by dragging it on the gray border. Just place the mouse pointer anywhere on it besides the buttons and drag. To close or open the Panel, choose Panel at the Window menu.

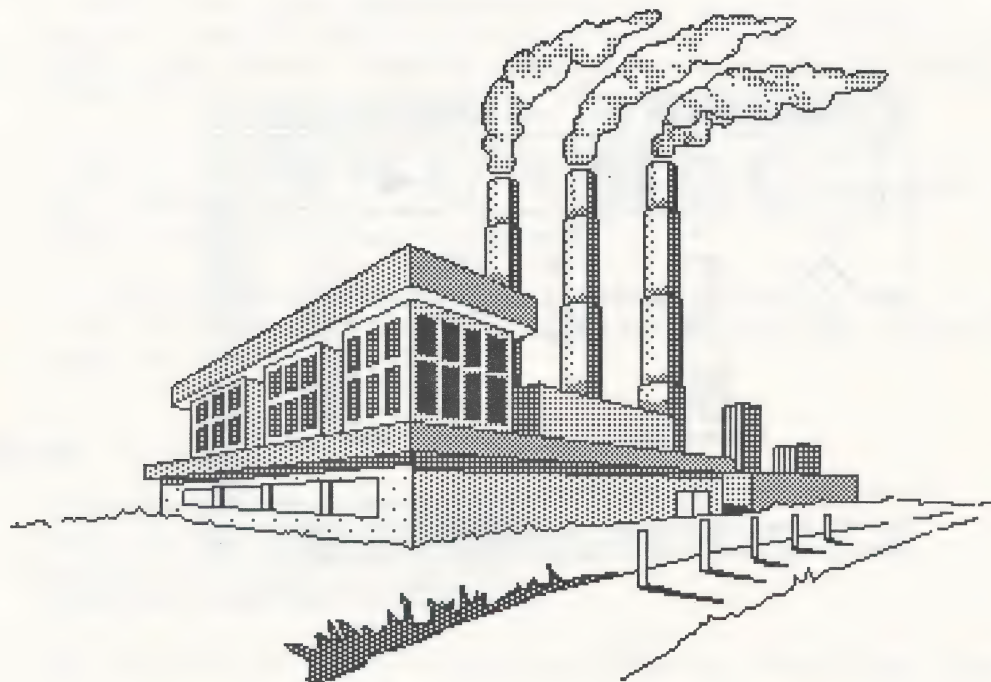
The Overview Window (Overview)

The Overview window displays the current Overview document. An Overview document can be any presentation including slides, annotation, clip animation, movies, transitions and sound. The name you give the Overview document appears in the Title bar.

An Overview document remains very small, taking up very little memory (typically 1K), even for very large presentations. That's because it is a collection of document *names*. When you play an Overview document, it opens up the documents that are shown in the Overview window.

You can drag the Overview window around on the Stage by its title bar.





VideoWorks Reference

This section of the manual covers only the VideoWorks part of VideoWorks II. (The Overview Reference precedes this section.)

This reference contains all VideoWorks features, divided into the following three sections:

- VideoWorks Menus
- VideoWorks Windows
- VideoWorks Hidden Features

This reference is organized according to the way you *view* VideoWorks rather than how you *use* it. The explanations here are brief. You should refer to "How to Animate" for a more in-depth description. The basic concepts are also covered in the Tutorials.

VideoWorks Menus

This section describes the menus available in the VideoWorks part of VIDEOWORKS II. The Apple menu is the same in both VideoWorks and Overview.

Long Menu / Short Menu – VideoWorks has long and short menus. The short menus are for beginners. For further description, refer to Long Menu / Short Menu in the Control menu.

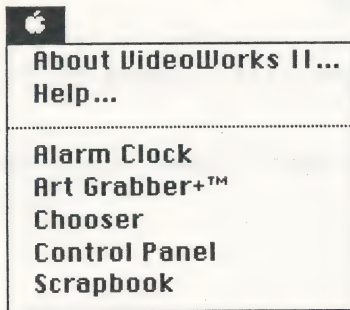
Hierarchical Menu – VideoWorks was designed to take advantage of the Macintosh System 4.1 hierarchical menus. These menus are more convenient to use with System 4.1. These menus are the only differences between System 4.1 and earlier systems.

The Sound and Text menus make use of hierarchical menus. If you are using a system prior to System 4.1 (such as System 3.2), you will notice that the Text menu does not appear. In its place are two menus Font and Style, which operate as any ordinary menu – that is:

- Text menu appears if you are using System 4.1
- Font menu and Style menu appear if you are using System 3.2

The Sound menu differences are described under "Sound Menu" later in this section.

The Apple Menu (VideoWorks)



The Apple menu is indicated by the Apple symbol at the left end of the menu bar. The menu items we will describe here are About VideoWorks, Help, Art Grabber+ and the Scrapbook. The other menu items are the standard Macintosh desk accessories, described in your Macintosh manual.

About VideoWorks II...

About VIDEOWORKS II displays a message indicating the amount of memory used by the Cast, Scene and Sound – the three components of any VideoWorks animation. It also indicates the amount of free memory (FreeMem) and the size of the file on disk (File Size). If you are running short of memory, these values, especially FreeMem, are useful for diagnosing a movie to evaluate whether to break it down into smaller parts or get more memory. To remove the window, just click the mouse button.

The values are in bytes. For example, Cast: 50176 means the Cast takes up 50,176 bytes of memory.

To convert bytes to K (kilobytes), divide the number by 1024. Thus, 50176 bytes is 49K (that is 50176/1024).

Cast indicates the amount of space taken up by the Cast, including all artwork in Paint, and all text in the Text window.

Scene indicates the amount of space taken up by the action that takes place on the Stage, not counting the Cast or Sound, but including QuickDraw shapes. (This also corresponds to the amount of space that is freed up when you choose Burn Scene. However, you won't actually realize that savings until the next edit, because the scene is saved so you can restore it with Undo.)

Sound indicates the amount of space taken up by the sounds. This will normally be less than the size of your Sounds file, because only the sounds you use are loaded from disk into memory. This value is most useful when you are using digitized (sampled) sounds, which tend to take up a lot of memory.

FreeMem indicates the amount of headroom your system has. As you add to an animation, this number grows smaller. The Cast, Scene and Sound can grow only by this much before you run out of room. Once FreeMem diminishes to zero, the animation cannot grow any further. You can work around this memory limitation by stringing shorter movies together in Overview to produce one longer movie.

Notice that FreeMem is unrelated to the amount of free space on your floppy or hard disks. See Speed, Memory and Disk Space later in this Reference for an explanation of this.

File Size indicates the size of the document on disk. This is helpful to use when you're not sure how much room on your disk.

Version Number The About VideoWorks message also displays the version number of your copy of VideoWorks. Refer to this version number when calling for technical support.

Help...

The Help command displays important and useful procedures, along with a list of shortcuts.

Art Grabber+

Art Grabber+ enables you to bring any art in MacPaint format into VideoWorks for use in movies. This art can be from MacPaint or can be from a number of other sources if saved as MacPaint, including GraphicWorks, FullPaint, SuperPaint, Easy3D, Thunderscan, MacVision, other scanners and digitizers and any other application that saves in MacPaint format.

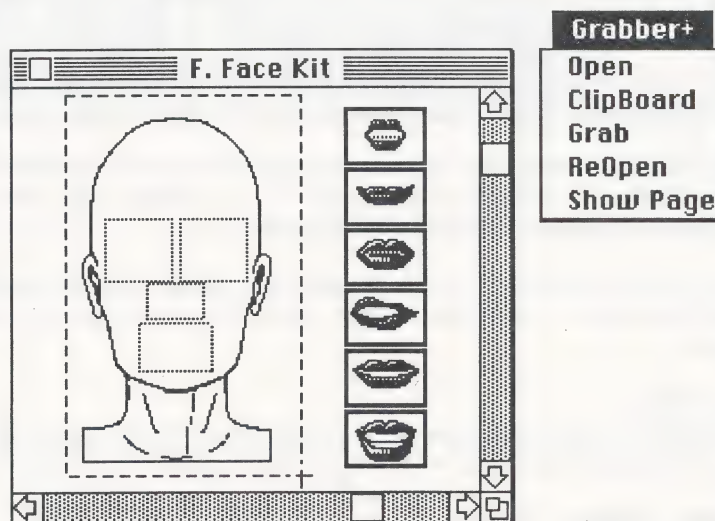
When you choose Art Grabber+ from the Apple menu, a new menu called Grabber+ appears at the right end of the menu bar. By choosing Open from this menu, you can access any document in MacPaint format from any disk or folder. Then you can select all or any part of that document by dragging the selection rectangle across it and choosing Grab from the Grabber+ menu. Then you can paste into Paint or into the Cast.

You might use Art Grabber+ to grab a picture of a sunset created in GraphicWorks to paste into VideoWorks for use as a backdrop in a movie. Or you might grab art from the Art disk that comes with the product. You can also use Art Grabber+ to grab any screen shot in virtually any program (by first making use of Command-Shift-3 to save the screen to disk). Art Grabber+ also has a Clipboard command to let you view the contents of the Clipboard.

Note that the Art Grabber+ desk accessory is built into the VideoWorks II program and does not need to be installed in your system file.

The commands that appear in the Grabber+ menu are described next.

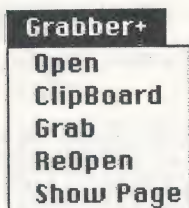
For more information on: See "How to Animate":
 • Using Art Grabber+ "Creating and Importing Artwork"



Art Grabber+ is used to import artwork into VIDEOWORKS II.

The Grabber+ Menu

(Visible at right end of the menu bar only when Art Grabber+ has been chosen)



The Grabber+ menu contains commands for using Art Grabber+. The Grabber + menu appears only when Art Grabber+ has been selected from the Apple menu. The menu disappears from the menu bar when Art Grabber+ is not active.

Open

The Open command opens any document that is in MacPaint format. You can open a document from any folder on any drive. Art Grabber+ can display only one document at a time.

You can eject the current disk (by clicking Eject), and insert the disk containing the document you wish to grab. VideoWorks will prompt you if you need to swap disks. Click the box labeled Drive if you need to switch drives.

To close Art Grabber+, click the close box – the little box in the upper left corner of the Art Grabber+ window.

Clipboard

The Clipboard command displays the current contents of the Clipboard, the area used for cut, copy and paste. When the Clipboard is being displayed, the name Clipboard appears in the title bar. Choosing Clipboard does nothing if the Clipboard is empty or contains text.

Grab

Grab instructs Art Grabber+ to copy the contents of the selection rectangle to the Clipboard. Equivalently, you can choose Copy from the Edit menu (or use ⌘-C).

Grab is normally dimmed; to enable it, you must Select an image in Art Grabber+ by dragging the crosshairs across the artwork.

When you drag your selection rectangle to the edge of the Art Grabber+ window, the artwork will automatically scroll in the window until you move the rectangle into the window.

Once a selection has been grabbed, you can select a Paint easel or Cast position and paste the artwork. Paste is described later in the Edit commands. You cannot grab text (unless it is bit-mapped), nor can you view it on the Clipboard.

The Clipboard referred to here is the same Macintosh Clipboard used in other applications. Any time you Copy or Cut a graphic image (not text), you can open Art Grabber+ to view that graphic image.

ReOpen

The ReOpen command opens the document most recently opened in Art Grabber+. A common use for ReOpen is to return to the original document after viewing the Clipboard.

Show Page

Show Page displays the entire document, reduced to fit on the screen. At this point you can move the viewing window if you wish by moving the pointer into it and dragging the window. Click OK to return to the normal view.

Scrapbook

The Scrapbook is a place you can save frequently used artwork, sequences, film clips and text. The Scrapbook is very useful for:

- Copying artwork and animation from one movie to another
- Storing artwork and animation for later use

When storing an animation in the Scrapbook, you must be careful not to change the Cast positions of the artwork in the original movie.

For more information on:

- Using the Scrapbook
- How to Move Artwork and Animation Between Movies
- How to use the Scrapbook for Temporary Storage
- Important: Storing Sequences in the Scrapbook

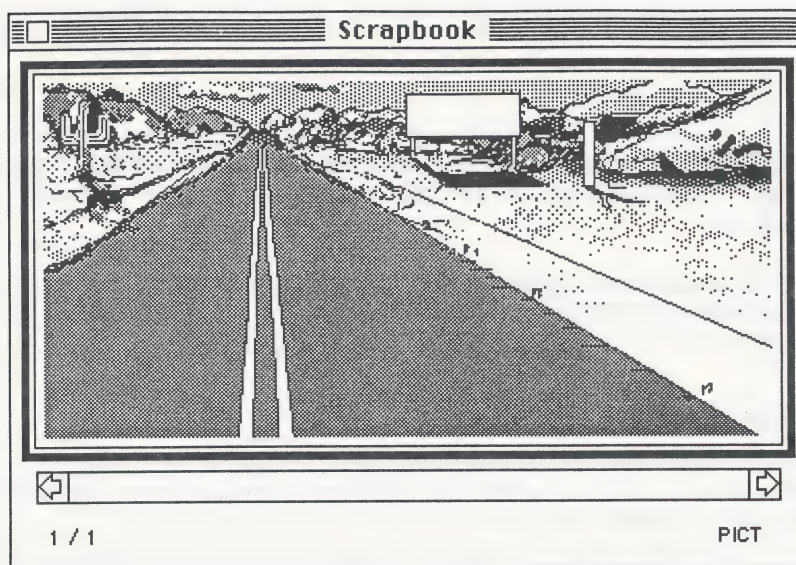
See "How to Animate":

"Creating Artwork"

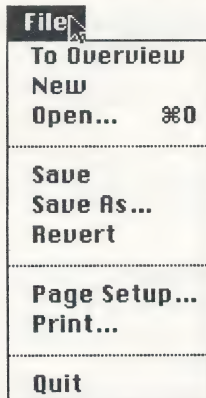
"Advanced Animation"

"Advanced Animation"

"Advanced Animation"



The File Menu (VideoWorks)



The File menu contains commands for creating, opening, saving and printing VideoWorks documents. When speaking of a VideoWorks document, we are referring to the VideoWorks (movie) or Overview document (animated slide show) that is saved as a file.

VideoWorks allows only one document to be open at a time.

To Overview

The To Overview command closes the VideoWorks document and opens Overview. This command is further described in "Moving Between Overview and VideoWorks" in "How to Animate."

New

The New command opens a new VideoWorks document. The document opens untitled. It does not need a name until you Save or Quit – at that time you will be asked to type in a name for this document.

VideoWorks can handle only one document at a time, so if a document is already open when you choose New, a dialog box is displayed, giving you the opportunity to save or discard the latest changes.

Open...

The Open command lets you open an existing VideoWorks or Overview document from disk. When you choose Open, a dialog box appears. Click a button to choose which type of document you want to display. Then select the document and click Open.

If you want a document from a different drive, click Drive. If you want to insert a new disk, first click Eject to remove the current disk. To return to VideoWorks without opening a document, click Cancel.

Save

The Save command saves the current document to disk. The current version replaces any previous version on disk. Once a document has been saved, you can quit VideoWorks without losing that document.

Save As...

The Save As command allows you save the current document to disk under a different name, or under the same name but to another folder or drive.

The Save As dialog box has an option Save As V1.0, described next.

Save As V1.0...

The Save As V1.0 option allows you to save a document in the earlier VideoWorks 1.0 format. You can use V1.0 documents with VIDEOWORKS II, but some functions will not work, such as sampled sounds, film loops, ASCII text, Macintalk, and Color.

Note: The original VideoWorks movies are identified by the icon shown below (with the numbers 1-2-3), while VIDEOWORKS II documents have the icon with the numbers 4-5-6.



VideoWorks 1.0



VIDEOWORKS II

Revert

The Revert command returns the last saved version of the current document to the display. It does this by discarding the currently displayed version and opening the one from disk.

Page Setup...

The Page Setup command offers options for determining how a page is to be printed. You are offered different page sizes, and a choice of vertical or horizontal orientation. The Apple LaserWriter also offers reduction/enlargement, smoothing, and font substitution.

Print...

The Print command lets you print frames of your animation. You are given a great variety of choices. You can print frames from the movie full-size or reduced and arranged as a storyboard. You can print out all of the text or artwork in the Cast. With each printout you can include the name of the document, the date, and the frame number. For more details, see "Printing" in "How to Animate."

Quit

Quit does one of two things:

- If you entered VideoWorks by way of Launch Editor in Overview, choosing Quit closes the VideoWorks document and returns you to Overview and the document that was previously open.
- If you entered VideoWorks any other way, choosing the Quit command exits VideoWorks and returns you to the desktop.

Use this command when you are through using VideoWorks. The Clipboard is saved when you quit, and its contents can be used by another program. If you have not saved the most recent changes to the current document when you choose Quit, VideoWorks will ask you if you want to save those changes.

The Edit Menu (VideoWorks)

Edit	
Undo	⌘Z
Cut	⌘H
Copy	⌘C
Paste	⌘U
Paste Relative	
Clear	
Insert Frame	⌘A
Delete Frame	⌘K
Switch Castmember	⌘E
In-Between	⌘G
Burn Scene...	
Blank From Stage	⌘B
Place On Stage	⌘T
Set Transition...	
Set Tempo...	
Reverse Sequence	
Normal Size	

The Edit menu contains commands for editing the Score, Cast, Paint, Text and the Stage.

Undo

Undo reverses your last action. Since it works only on your *last* action, you must use it right after a mistake, before making any other change to the animation.

In Paint, the Undo command works just like it does in MacPaint. In VideoWorks, Undo also works with Cut, Copy, Paste, Clear, Burn Scene, Insert Frame, Delete Frame, Step, and Real-Time recording.

The obvious way to use Undo is to correct a mistake. However, there are really two ways to use the Undo command:

- To correct a mistake
- To alternate between two different versions of artwork or animation

This second option works because repeatedly choosing Undo toggles back and forth between the original and modified versions. You can cleverly alternate between two different versions of artwork (in Paint) or animation (on the Stage). For example, if you add a Real-Time animation to an existing movie, you can alternately view the movie with and without it, simply by choosing Undo prior to watching the movie. Command key shortcut: **⌘-Z**

In Paint, pressing the tilde (~) key is a shortcut for Undo.

Cut

The Cut command removes the selected art or sequence of art from its current location and places it on the Clipboard. You can then use Paste to move that art or sequence to another location. Use Cut and Paste to *move* art (rather than to copy it).

Cut appears as Cut Graphic if the Paint window is active, Cut Cast if the Cast is active, Cut Score if the Score or Panel is active, and Cut Text if the Text window is active. These correspond to the following:

- Cut and Paste artwork within the Paint window
- Cut and Paste castmembers to different positions in the Cast
- Cut and Paste groups of cells within the Score
- Cut and Paste text within the Text window

What may not be immediately apparent is that you can also:

- Cut artwork from Paint and Paste into the Cast (and vice-versa)
- Cut cells from the Score and Paste into the Cast (Film Loop)

Of course, you can:

- Cut from Art Grabber+ and Paste to Paint or Cast
- Cut and Paste between the Scrapbook and any one of Paint, Cast, Score or Text windows

Cut always operates on the currently active window. First you click on the window you want to cut from (Paint, Cast, Score, Text, Overview, Art Grabber+ or Scrapbook), then select the artwork, text or sequence, and finally choose Cut.

Cut does *not* operate directly on selected artwork on the Stage (that is, when the Stage is cleared of all windows). You can open the Score and cut the cells instead. The Scrapbook is the only window where you do not have to select the artwork before using Cut. Command key shortcut: **⌘-X**

For more information on:

See "How to Animate":

- The Cut command "Understanding Cut, Copy, Paste and Clear"

Copy

The Copy command makes a copy of the selected art or sequence of art and places that copy on the Clipboard. Unlike the Cut command, Copy does not remove the selected art or sequence from its original location. Use Copy and Paste when you want to duplicate art, rather than move it.

Copy can be used in all of the same places that Cut can be used. Refer to the list shown earlier under Cut. Command key shortcut: **⌘-C**

For more information on:

See "How to Animate":

- The Copy command "Understanding Cut, Copy, Paste and Clear"

Paste

The Paste command copies whatever was put on the Clipboard into the currently selected location. To use Paste, first you put something on the Clipboard with Cut or Copy. Then you specify where you want the Clipboard contents to be pasted by clicking or dragging with the pointer. Then you choose Paste.

You can use Paste to insert artwork, a sequence of art, or text, as described in the list under the Cut command.

Paste always operates on the currently active window. First you click on the window you want to paste into (Paint, Cast, Score, Text, Overview, Art Grabber+ or Scrapbook), then select an insertion point, and finally choose Paste. If you want to Paste something onto the Stage, open the Score and Paste there. Paste does *not* operate directly on the Stage.

In the Score, you can control how Paste writes over existing cells by the way you select the cells:

- If you select by clicking an insertion point (a blinking selection point), it pastes the *entire* sequence from the Clipboard over as many existing cells as it needs to insert the entire sequence.
- If you select by dragging the cursor across a block of cells, it pastes only into that specific highlighted block of the Score *and no further*.

Command key shortcut: -V

- For more information on:
- See "How to Animate":
- The Paste command....."Understanding Cut,Copy,Paste and Clear"

Paste Relative

The Paste Relative command alters the way Paste works in the Score. With Paste Relative selected, when you paste a sequence of art in the Score, the first frame of the new sequence is automatically positioned on Stage exactly where the previous sequence stopped.

For example, if sequence A runs from 10 to 20 of channel 1, when you paste sequence B at the end of sequence A (either at 20 or 21), the first frame of B will automatically take the same position on the Stage as the last frame of A. The effect is that the two sequences are chained, one after another, in one smooth, continuous motion across the Stage. With Paste Relative turned on, you can repeatedly paste the same sequence all the way across the Stage.

Clear

Clear removes and discards the selected art or sequence of art, without saving it on the Clipboard. Clear is used when you have no further use for a particular art or sequence of art, when you do not want to affect what is already placed on the Clipboard.

Like Cut, Copy and Paste, the Clear command operates on artwork, sequences or text in many different windows: Paint, Cast, Score, Text , Overview, Art Grabber+ and Scrapbook.

- For more information on:
- See "How to Animate":
- The Clear command....."Understanding Cut,Copy,Paste and Clear"

Insert Frame

Insert Frame adds a frame at the location of the *Playback Head*, causing the action to stand still for one frame. Said differently, it duplicates the frame that currently appears on the Stage. Unlike Cut, Copy and Paste, it does *not* insert at the currently selected cells in the Score.

The Insert Frame command duplicates the current frame and steps the movie to that new frame. With the Score open, you will notice that it inserts a new frame into the animation across *all* channels at the location of the Playback Head. It actually lengthens the movie – adds one more frame to its length.

Insert Frame works pushes the existing frames to the right to make room for the extra frame. It inserts somewhat like the insert function in a word processor inserts characters – no information is written over. Insert Frame is analogous to splicing in a new frame in a film.

Use Insert Frame:

- To cause a slight pause in the animation. Since the current frame is copied exactly, the animation appears to stop for one frame.
- To make room between two scenes for other action to be added.
- To lengthen a movie.
- To slow down action in a movie – use Insert Frame every other frame or so. (If a single castmember is moving in a channel, then you can use In-Between to smooth out the action.)

Since Insert Frame inserts a frame across all channels, if you wish to introduce a new castmember without affecting the existing animation, you should use the procedure "How to Animate a Sequence Frame-by-Frame" instead. Command Key shortcut: -A

Delete Frame

Delete Frame deletes the frame at the location of the Playback Head, across *all* channels. This is the frame that appears on the Stage (the current frame). (Unlike Cut, Copy and Paste, it does *not* delete the current selection in the Score.)

Because Delete Frame actually removes a frame from the animation, it is analogous to cutting a frame from a film – the animation ends up one frame shorter in total length.

Use Delete Frame:

- To delete an unwanted scene from a movie (across all 24 channels plus the sound channel).
- To shorten a movie.
- To speed up a movie – use Delete Frame for every other (or every third) channel.

Be aware the Delete Frame deletes the all of the channels at the current frame, *including the sound channel*. If you are synchronizing pictures with sound, you may have to lay down a new sound track in that region.

Unlike Blank From Stage, the animation has one one fewer frame after Delete Frame is used. Delete Frame and Insert Frame are alike in that they both affect all channels. Delete Frame has absolutely no affect on what is stored on the Clipboard.

Undo works to return a frame deleted with Delete Frame. Command Key shortcut: -K

Switch Castmember

The Switch Castmember command replaces the art selected on the Stage or Score with the art selected in the Cast. When you use Switch Castmember, the center of the new art registers at the center of the old art.

To use Switch Castmember, select the art you want to replace by clicking it on the Stage. Then go to the Cast, select the art you want to put on the stage. Then choose Switch Castmember (or double-click on the new castmember).

Shortcut for Switch Castmember command: Double-click on the new castmember in the Cast.
Command Key shortcut: -E

In-Between

In-Between lets you specify the starting and ending position of artwork in a sequence and automatically fills in the intervening frames. In-Between is used in at least four different ways:

- **Fill-right** to make an object stand still over time.
- **Move an object smoothly across the Stage**, such as to give motion to artwork, or to scroll text across the page.
- **Make an object grow or shrink**, by stretching or shrinking it over time, either in-place or as it moves. This works for bit-mapped objects as well as QuickDraw Shapes (but not for Text window text).
- **With a Film Loop**. See "Adding Film Loops" in "How to Animate."

In the second and third instances above, In-Between interpolates position and shape between two frames of a channel. In-Between will *not* paste over occupied cells.

For an example of how In-Betweening is used, see The Frogs" tutorial #6.

Command Key shortcut: -G

For more information on

- Using In-Between.....

See "How to Animate"

- How to Create Stationary Artwork in a Movie
- How to Make Artwork Move Smoothly Between Two Points
- How to Make Artwork Stretch as it Moves

Burn Scene

Burn Scene clears the Stage and Score, while preserving the castmembers (in the Cast, Paint and Text windows). Use Burn Scene if you want to create a new animation and keep the same castmembers. Be careful to use Burn Scene only if there is nothing in the current Score you wish to preserve.

Blank From Stage

Blank From Stage clears the *contents* of the selected cells from the Score and the Stage, leaving the cells empty. Blank From Stage has no effect on the Cast.

You use Blank From Stage when the Score is closed and you want to remove artwork from the Stage. First you click on the artwork to select it (or use Shift-click to select several pieces), then choose Blank From Stage. The artwork is removed from the Stage and Score. Command Key shortcut: -B

Place On Stage

The Place On Stage command lets you place the currently selected castmember on the Stage by clicking the cursor. It is equivalent to dragging the castmember out from the Cast.

Here are two situations where you would use the Place On Stage command:

- If the Cast is closed and you know which castmember is currently selected, use Place On Stage to place the castmember on the Stage. This avoids the extra step of opening up the Cast.
- If the pointer is already positioned on the Stage exactly where you want to place the castmember, press Command-T to place it.

First you select a castmember, then choose Place On Stage. This changes the pointer into crosshairs (shown below). Move this crosshairs to the point where you want the center of the artwork to appear, and click. The currently selected castmember will appear in that position.

 -Crosshairs for Place on Stage

Place On Stage is a toggle command. This means that if you choose Place On Stage but decide not to place art, just choose Place On Stage a second time – the crosshairs will return to the normal pointer. Command key shortcut: -T

For more information on

See "How to Animate"

- How to Place Artwork on the StageCreating Artwork
- Other Ways to Place Artwork.....Advanced Editing

Set Transition...

The Set Transition command lets you determine how one picture changes to the next. The transition is added in the sound channel. For example, when you add a dissolve transition to frame 10, it causes frame 9 to dissolve into frame 10. There are four basic kinds of transitions: wipes, pushes, reveals and dissolves. To set a transition, select a single frame in the sound channel and choose Set Transition. When the dialog box appears, choose a transition by clicking on the round button, then click OK.

Set Tempo...

The Set Tempo command lets you set the tempo at different points of the animation. This allows you to make the action run faster in one place and slower in another. To set a tempo, select a frame in the sound channel and choose Set Tempo. When the dialog box appears, type in a number corresponding to the speed you would set from at the Speed Control in the Panel, then click OK.

Reverse Sequence

The Reverse Sequence command reverses the direction of any selected channels in the Score. Use this command if you want to make a sequence go backwards.

The way you use Reverse Sequence is to open the Score, select the cells you want to reverse, and choose Reverse Sequence. The order of those cells in the Score are actually reversed by this command. Then when you play the movie, the sequence will play backwards. (For example, if you selected cells 1 through 10 of channel 5, cells 10 and 1 get swapped, cells 9 and 2 get swapped, and so forth.)

Normal Size

The Normal Size command returns the selected artwork to the size it was when originally brought onto the Stage. This is helpful if you inadvertently re-size artwork by grabbing one of its handles (when you only meant to move the artwork).

Just select the artwork on the Stage (or select the sequence in the Score) and choose Normal Size from the Edit menu.

Re-sized artwork can slow down the animation. Sometimes you might re-size artwork by such a small amount that you don't even notice it, except that the animation slows down when you get to a certain frame. The Normal Size command gives you a way to change the artwork back to its unscaled size. Command Key shortcut: **⌘-N**



The Control Menu (VideoWorks)

Control	
Play	⌘Q
Stop	⌘W
Rewind	⌘R
Step	⌘S
Back Step	⌘D
Repeat Selection	
✓ Repeat All	
Left	⌘-
Right	⌘=
Up	⌘P
Down	⌘;
Short Menus	
Preferences...	

The Control menu contains commands that control how an animation plays back. These commands do not modify the animation itself. Many of these commands are duplicated in the Panel.

The following five commands appear in the Panel as buttons. These are described more thoroughly in the Panel section of "Windows" later in this Reference.

Play

The Play command starts the animation. Play can also be accessed from the Control menu. Command key shortcut : ⌘-Q

Stop

The Stop command halts the action. Stop can also be accessed from the Control menu. Command key shortcut: ⌘-W

Rewind

Rewind winds the animation back to frame 1. If the animation was running, it stops. Rewind can also be accessed at the Control menu. Command Key Shortcut: ⌘-R

Step

The Step command advances the animation forward one frame. It has an additional function, when recording frame-by-frame, to copy artwork to the next frame. Step is also available at the Control menu. Command key shortcut: ⌘-S

Back Step

A Back Step steps the animation backwards one frame at a time. Back Step can also be accessed at the Control menu. Command Key Shortcut: ⌘-D

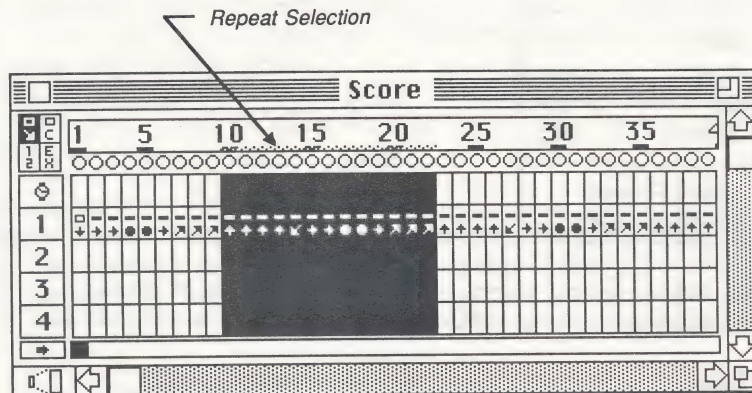
Repeat Selection

The Repeat Selection command lets you repeat a portion of a movie without having to see the entire movie. This comes in handy if you need to work on just one part of a movie.

To repeat a portion of a movie, open the Score and select the frames to be repeated (in any channel). Choose Repeat Selection and play the movie. The Frame Counter in the Panel flashes to signify that Repeat Selection is on.

Notice that a gray bar appears in the Score just above the round marker, to indicate which frames are being repeated.

To turn off Repeat Selection, choose Repeat All.



Repeat All

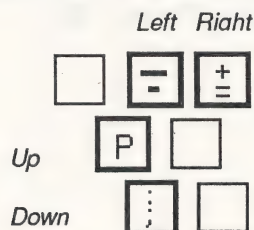
The Repeat All command turns off the Repeat Selection. (See Repeat Selection above for more information.)

Left, Right, Up, Down

These commands move the selected artwork one pixel left, right, up and down, respectively. A pixel is the smallest increment possible on the display ($1/72$ of an inch on a standard Macintosh display).

To use the Left command, first click on the art you want to move (or select an entire sequence in the Score) and then choose Left from the Control menu.

Shortcut: The quickest way to access this command is with the Command key $\mathbb{H}$ -- (Command-minus). You can repeatedly press this key combination to move the artwork very precisely to the left. As the illustration below shows, you can move very easily in the four directions.



Short Menu / Long Menu

The Short Menu / Long Menu commands switch between short and long menus. Short menus show the simpler commands that beginners would use. Long menus add more advanced commands.

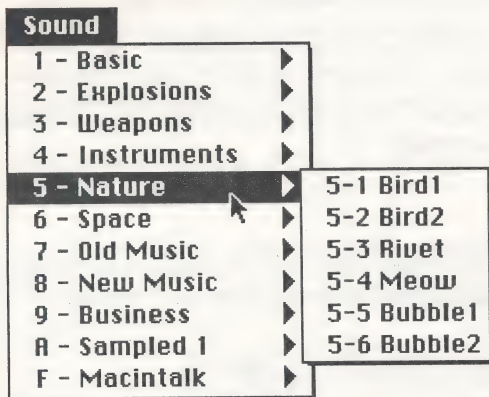
The first time you start VideoWorks II, short menus are displayed. If you change menus, it remembers and displays the same menus thereafter.

Preferences...

The Preferences command lets you specify certain settings. This command is described earlier under "Preferences" under the Control menu in the "Overview Reference" section.



The Sound Menu (VideoWorks)



The Sound menu contains dozens of sounds you can add to your movie. This menu is identical to the Sound menu in VideoWorks.

You can play music, make noises, produce speech, or play sampled (very real) sounds. You simply add these sounds to the sound track in the Score. If you have access to an audio sampler, you can use a microphone to save your own sounds—they will have uncanny realism.

Sounds come in several basic categories:

- Music (Old Music, New Music, Instruments)
- Effects (Basic, Explosions, Weapons, Nature, Space)
- Presentations (Business)
- Computer speech (Macintalk)
- Real sounds (Sampled sounds)

Note: System 4.1 vs. Earlier Systems We have provided System 4.1 with VideoWorks in order to take advantage of hierarchical menus. System 4.1 is simply more convenient to use – there is no loss of function when using an earlier system.

Sound Menus with a System Prior to System 4.1. The Sound menus operate as follows with Macintosh System 3.2, or any other system prior to System 4.1. First select the cells in the sound channel of the Score where you want to insert the sound.

1. Pull down the Sound menu and choose a category by moving to it and releasing the mouse button.
2. Pull down the Sound menu again. You will notice a submenu appears in place of the original menu. Choose a sound by moving to it and releasing the mouse button.

You can navigate around the menus using the Top and Next commands that appear at the top of each submenu:

- **Top** – Returns the Sound menu to the top menu which contains all of the categories. You must pull down the Sound menu again to see the effect of this command.
- **Next** – Changes the Sound menu to the next category. You must pull down the Sound menu again to see the effect of this command.

For more information on:

See "How to Animate":

- Sounds....."Adding Sound, Tempos and Transitions"

The Window Menu (VideoWorks)

Window	
Stage	⌘1
Panel	⌘2
Cast	⌘3
Score	⌘4
Paint	⌘5
Text	⌘6
Tweak	⌘7
Color	⌘8

The commands in this menu open and close windows in VideoWorks. The following describes how to use these commands. The windows themselves are described in detail in "Windows," a later section of this manual.

To illustrate how these commands work, let's use the Score command as an example. When you choose the Score command from the menu, the Score changes to its next state:

1. If the Score is on the screen but inactive, it will be made active (brought to the front).
2. If the Score is already active, it will be closed.
3. If the Score is closed, it will be opened.

Windows that are open have check marks next to them in the Window menu. The item that is underlined is the currently active window.

Active Window

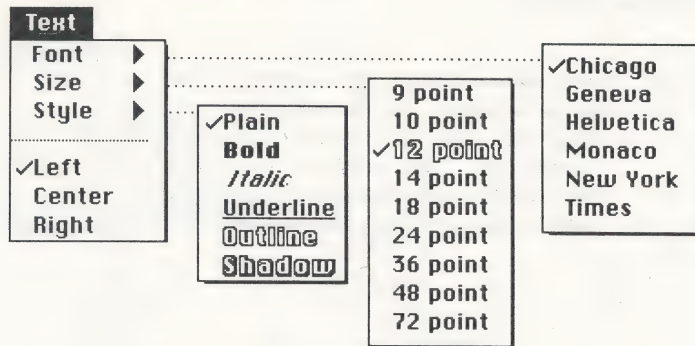
The term "active window" is important to understand when selecting with the pointer. Only one window can be active at a time. In general, you can tell which window is active simply by looking at it – its title bar is highlighted with horizontal lines. (However, the Panel and Stage, have no title bars.)

The active window is in front of all other windows. To select artwork, text or cells, you must first make sure the window you want to select is active. Thus, you click on the Cast to make it active, then select a castmember, or you click on the Score, then select a cell. Here again, the Stage is an exception—you can select artwork on the Stage at any time. To Cut, Clear, Copy or Paste in a certain window, you must first make that window active.

Most windows become active when you click anywhere on them. However, Tweak requires you to click on its title bar to make it active. (The reason is so that you can adjust Tweak and still keep your current window active.)

Command key shortcuts for the window commands are shown to the right in the Window menu. For example, the shortcut for the Stage command is ⌘-1.

The Text Menu (VideoWorks)



The Text menu lets you specify the font, size, style and alignment of text in the Paint window and Text window.

The menu shown here is the hierarchical kind available when you are using Macintosh System 4.1.

Note: If you see the Font and Style menus instead of the Text menu on your menu bar, your Macintosh is using a system prior to System 4.1. The only difference is that System 4.1 supports hierarchical submenus – there is no loss of function when using an earlier system

The Text menu has three submenus: Font, Size and Style. Use the Text menu to modify text in the Text window. It also works for setting the text that you are about to type, or have just finished typing, in the Paint window.

These attributes are similar to those found in MacPaint, MacWrite, and most Macintosh applications.

Paint text and Text text are fundamentally different in the way they are edited and in the way they print. Paint is bit-oriented while Text is character-oriented. Initially, when you type in the Paint window, you can use the Text menu to change font, size or style. However, once you click the mouse, the text becomes bit-oriented, and you can no longer alter the Paint text with commands from the Text menu – you must instead use the eraser and re-type the text. Text window text, however, can easily be edited at any time. You can delete characters with the Backspace key, and can change the font, size or style from the Text menu.

Which fonts and sizes are available at the Text menu depends entirely on which ones are loaded into your current System file (in your System Folder). You can add or remove fonts and sizes using the Font/DA Mover.

Font

Sets the type fonts: Geneva, New York, Helvetica, Times, etc.

Size

Sets the size of the type in points: 9 pt, 10 pt, 12 pt, 14 pt, 18 pt, etc.

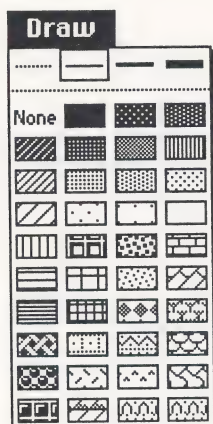
Style

Sets the type style: Plain, bold, *italic*, underline, outline, shadow.

Left, Center, Right

Causes the text to be pushed left, aligned with the left margin, centered between the margins, and aligned with the right margin.

The Draw Menu (VideoWorks)



The Draw menu is used to set the line widths and fill patterns for lines and shapes.

Line Widths

The top row of the Draw menu contains four different line thicknesses from which you can choose. The leftmost choice (dotted line) is no line thickness at all. The line thickness you choose changes the thickness of:

- The Line (in Paint)
- The QuickDraw Line (in the Cast)
- Outline of circle and rectangle (in Paint and QuickDraw Shapes)

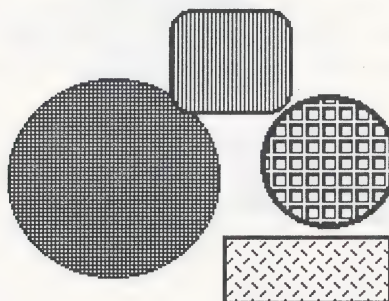
Fill Patterns

Below the row of Line Widths, the remainder of the menu defines the fill patterns for shapes. Choosing one of these patterns changes the pattern in all of the QuickDraw shapes:

- Circle and rectangle (in Paint)
- Circle, rectangle and rounded rectangle (in QuickDraw Shapes)

Choosing a pattern also affects these tools:

- Brush, paint bucket, and airbrush (in Paint)



The Ink Menu (VideoWorks)

Ink	
✓Erase	-normal
No Erase-leaves trails	
✓Copy	-normal
Matte	-outlines edge
Or	-transparent
Hor	-black reverses
Bic	-black is eraser
NotCopy	-invert then Copy
NotOr	-invert then Or
NotHor	-invert then Hor
NotBic	-invert then Bic
Mask	-for donut holes
Average	
Minimum	
Maximum	
Add	
Add Pin	
▼	

Ink alters the way the pattern on one piece of artwork interacts with the pattern on a piece of artwork behind it.

You can apply ink to artwork in the Paint window and to artwork that has been selected on the Stage or in the Score.

The Ink menu covers the ways two images can interact when their paths cross on the screen. With Copy (the default ink), for example, when a piece of art crosses in front of background art, you see the foreground art itself, enclosed in a white box.

Note: When artwork A is positioned in front of artwork B, only the ink on artwork A determines how the patterns interact. It makes absolutely no difference what the ink of the background art is.

Erase

Erase is the default mode of animating. Each time artwork changes position on the Stage, its previous position is erased from the screen. This is very natural and is usually the way you want your animation to run. However, you can choose No Erase to change how this works, for special effects.

No Erase

When No Erase is turned on, each image remains on the Stage. As an object moves, it leaves a trail of its previous locations across the screen, as in the following illustration. (This example also uses Matte ink, which eliminates the white box from around the donut.)



Note: In the following examples, the ink is applied to the donut (not to the rectangle, which is always Copy for these examples).

Copy (Normal)

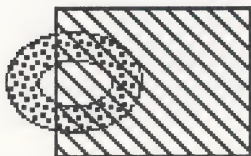
Copy is the default ink mode. This ink leaves a white box around the image (which is the quickest way for VideoWorks to generate the artwork). This white box is not visible except when the artwork passes in front of other artwork. Therefore, Copy is useful for backgrounds and when you are not positioning artwork on top of other artwork. You can use Matte to remove the white box, but use it sparingly.



Copy

Or (Transparent)

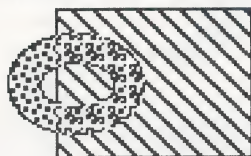
When Or is applied to the foreground art, you can see through that piece of art. Use Or to create transparent effects.



Or

Xor (Black Reverses)

When Xor is applied to the foreground art, any black pixel in the foreground art will reverse the pixel behind it. (This rule is called "Exclusive OR", or Xor, in computer parlance.) Also, the white pixels are holes that let the background through. Xor is useful for creating various strange effects. Xor is also useful for reversing black and white (such as reversing text to make it white on a black background)—just choose Xor, black fill from the Draw menu, then draw a QuickDraw rectangle on the Stage over the artwork you want to reverse.



Xor



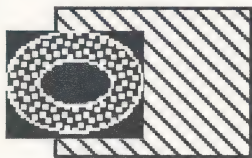
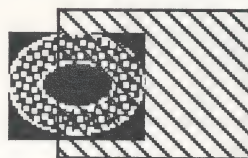
Bic (Black is Eraser)

When Bic is assigned to the foreground art, any pixel that was originally black in the foreground art will appear as white, regardless of the background art. A pixel that was originally white lets the background shine through unchanged. Bic is good for making ghost images and custom masks. (Technically, Bic stands for "Black is Clear," where "Clear" means transparent.)

*Bic*

NotCopy, NotOr, NotXor, NotBic

These modes are variations of the above four modes. The foreground image is first reversed, then the Copy, Or, Xor and Bic inks are applied. These are good for odd effects. Like Xor, the NotXor ink is good for reversing black and white – choose NotXor, white fill, then draw a QuickDraw rectangle on Stage on top of the artwork you want to reverse.

*NotCopy**NotOr**NotXor**NotBic*

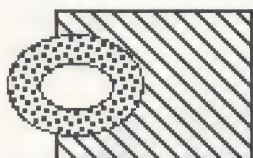
Matte (Outline Edge)

Matte removes the white box that is visible around artwork. Matte functions much like Lasso in the Paint window, in that the artwork is outlined, rather than enclosed in a rectangle. Matte works like lasso in determining which parts are opaque and which are transparent.

Both Matte and Mask use twice the memory of any other ink, because to create these effects, VideoWorks has to internally create a duplicate of the artwork.

Mask (Donut Holes)

When Mask is applied to the foreground art, you can see the background through its holes. For example, you could see the background through the window of a car, if the car were masked. For more information, see "How to Create an Ink Mask" in the "Advanced Animation" section of "How to Animate."

*Matte**Mask*

Color Inks

Average, Maximum, Minimum, Add, Add Pin, Subtract, Subtract Pin, Transparent
These inks are used when you have a Macintosh with a color card and monitor. To find out more about these inks, refer to "Adding Color" in the "Advanced Animation" section of "How to Animate."

VideoWorks Windows

This section describes the VideoWorks windows:

- Stage
- Panel
- Cast
- Score
- Paint
- Text
- Tweak
- Color

These windows can be opened and closed by choosing the corresponding command from the Window menu. For more information about how the commands in the Window menu work, refer to the "Window Menu" section earlier.

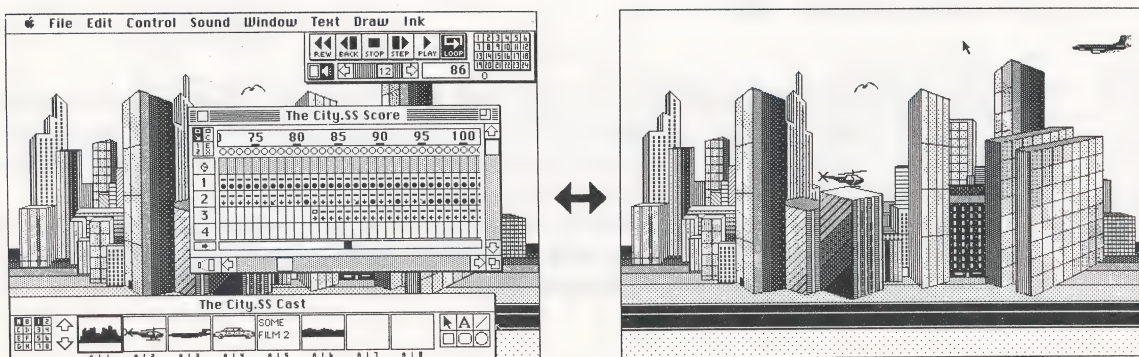
Stage (VideoWorks)

The Stage is the full-screen window where all animation takes place. All other windows (Panel, Cast, etc.) appear in front of the Stage. To get a full, uncluttered view of the Stage and animation, choose the Stage command at the Window menu. It clears the screen of all the other windows and the menu bar. Selecting the Stage command again returns all previously displayed windows to view.

The shortcut for the Stage command is $\mathbb{H}$ -1. When you are creating an animation, use $\mathbb{H}$ -1 to quickly toggle back and forth between the uncluttered Stage and the working windows.

The menu bar is active even when it and the cursor are both invisible, such as when you have selected $\mathbb{H}$ -1 (Stage) and $\mathbb{H}$ -Q (Play). You can move the (invisible) pointer to the top of the screen and press the mouse button, and the menus will actually pull down. (Try it!)

When the Stage is cleared of other windows, you can add the Panel, Cast, Score and other windows one at a time simply by choosing them from the Window menu.



The Stage command toggles between two views.

Panel (VideoWorks)

The Panel is the set of controls for controlling animation in VideoWorks. You can operate the Panel at any time to start, stop, slow down or otherwise control the animation. Most of the Panel controls are also accessible through the Control menu and by Command key equivalents. You should experiment with the various control methods to see which ones suit your particular style of working. The Panel functions are described next. The Command key shortcut for opening the Panel window is ⌘-2 .



Play starts the animation. Play can also be accessed from the Control menu. Command key shortcut: ⌘-Q



Stop halts the action. Stop can also be accessed from the Control menu. Command key shortcut: ⌘-W



Rewind winds the animation back to frame 1. If the animation was running, it stops. Rewind can also be accessed at the Control menu. Command key shortcut: ⌘-R



Step advances the animation forward one frame. It has an additional function, when recording frame-by-frame, to copy artwork to the next frame. Step is also available at the Control menu. Command key shortcut: ⌘-S

Step has two uses:

- **Step Forward (Non-Recording)** This is the normal way you use Step—to view an animation frame-by-frame. The Step command simply steps through the animation frame-by-frame, without otherwise affecting it. Step functions this way when no there are no record lights on in the Channel Indicator.
- **Frame-by-Frame Record (Recording).** If a record light is on in the Channel Indicator, the Step command steps to the next frame *and copies that artwork to the next frame*. The procedure for this is described in "How to Animate a Sequence Frame-by-Frame" in the "How to Animate" section.



Back Step steps the animation backwards one frame at a time. Back Step can also be accessed at the Control menu. Command key shortcut: ⌘-D



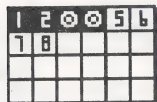
Loop causes the animation to repeat continuously. When the animation reaches the end, it continues with frame 1. Loop is in effect when the button is black. The button toggles, meaning that clicking it alternately activates and deactivates Loop.



Speed Control changes the playback speed, and is operational even during playback. Dragging the box to the left slows down the animation, while dragging it to the right speeds it up. For small animations, the number corresponds approximately to the number of frames per second. As more (or larger) artwork moves on the Stage, the animation slows down and the number no longer represents frames per second. Large animations will run faster on the Macintosh II or on a Macintosh with a speedup card. In those cases, this number will represent actual frames per second over a broader range.



Frame Counter shows, by frame number, your current position in the animation sequence. In addition, you can access any point in the animation by moving the pointer into the Frame Counter box and dragging the pointer. Dragging the pointer to the right (or down) increases the frame number, while dragging it to the left (or up) decreases the number. This action is the same as dragging the Playback Head in the Score – notice that dragging the number to the right has the same effect as dragging the Playback Head to the right.



Channel Indicator is the 24-channel grid at the right-hand side of the Panel. It indicates which channels are currently occupied (shows the channel number), which are empty, which are currently selected (shows black), and which are currently being recorded (shows record light).

In addition, the Channel Indicator also doubles as a channel selector: By clicking any of the 24 cells, you can select the corresponding channel. You can select more than one channel at a time by holding down the Shift key while clicking the squares. For more information, see "Controlling an Animation" in "How to Animate."



58 80 —Selection Range Indicators

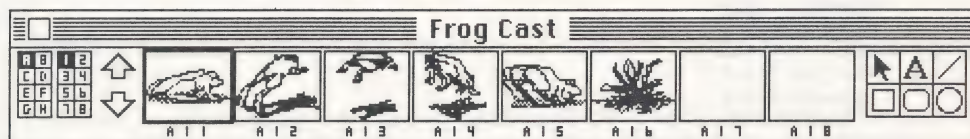
Selection Range Indicators are the two numbers that appear below the channel indicator. They show the beginning and ending frame numbers of the sequence selected in the Score. The left number indicates the first frame selected, while the right one indicates the last frame selected. If only one frame is selected, the same number appears in both places. If the frame is selected with a blinking cursor, then the frame number appears only in the left position and the right position is blank. As with the Frame Counter, you can adjust either number by placing the pointer on the number, pressing the mouse button and dragging up or down to extend the selection. You can use this feature to edit in the Score without actually opening up the Score.

Cast

The Cast is where all of the the artwork, text and Film Loops of a document is stored. It is a repository that holds castmembers, almost like a database manager. The Cast can hold 512 different castmembers (64 rows with 8 castmembers to a row) in a document. Each castmember has a different cast number, from A11 to H88. (These are the same numbers you see in the Text window.) One row of castmembers is visible at any one time. You can scan through the rows by clicking the Cast arrows up or down. Clicking any castmember will select that castmember, indicated by a heavy border around it. The heavy border indicates this castmember is currently active in Paint. (This border does *not* indicate which artwork is selected on the Stage.) Once selected, the castmember can be animated in real time, or dragged onto the Stage for frame-by-frame animation.

Castmembers can come from any of six sources: Paint window, Text window, Clipboard, Art Grabber+, Scrapbook and QuickDraw Text. For instance, by simply opening a new easel in Paint and drawing in it, VideoWorks automatically places that art into the first empty position in the Cast. (In fact, VideoWorks constantly updates the Cast to reflect any changes that are made in Paint.)

The Cast number indicator at the very left of the Cast shows which row is currently visible—banks A through H and rows 1 through 8. You can move directly to any row by clicking on these Cast numbers. The shortcut for opening the Cast is **⌘-3**.



The **Pointer** is for returning the cursor to the pointer shape after having chosen one of the QuickDraw Shapes or Text Box.



QuickDraw Shapes are geometric shapes that you can draw directly on the Stage. These four icons are the QuickDraw tools for creating these shapes, much like the rectangle, circle and line tools in the Paint window. However, the shapes you draw with the QuickDraw Shape tools have characteristics very different from those drawn in the Paint window.

You can fill a QuickDraw Shape with any of the patterns and change its outline with the line widths from the Draw menu.

By design, QuickDraw shapes take much less memory than do the same-sized bit-mapped shapes in Paint. QuickDraw Shapes are especially fitting for large background areas. Large QuickDraw shapes are not particularly suited to being moved as part of an animation, since they tend to slow down the animation. QuickDraw Shapes are not kept in the Cast – they appear only on Stage and in the Score. You cannot use QuickDraw Shapes with Real-Time Recording.



The **Text Box** is the means for typing text directly on the Stage. The icon shown is the tool for creating a Text Box, much like the Text tool in the Paint window. However, the text you type in a Text Box has very different characteristics.

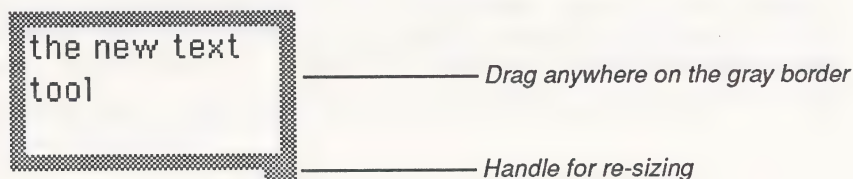
To type text on the Stage, you click on the Text Box, move to the Stage (the pointer is now a crosshairs with the letter A attached, as shown below) and drag open a box. Then you type the text. The text is entered into the next empty castmember position. As you type, the text is also entered in the Cast and in the Text window. This Text Box is merely a shortcut for typing into the Text window and dragging the text from the Cast onto the Stage.



(If you want to put the text in a particular position in the Cast, just click on that position before dragging open the text box.)

Text in the text box is character-oriented (as opposed to the bit-oriented text in Paint). You can go back later and edit this text character-by-character, change its font, style or size. This kind of text also takes up a lot less memory than Paint text. However, when animated to move across the Stage, it moves more slowly than does Paint text.

The box you create with the Text Box looks like this when it's selected:



Use the handle on the lower right corner to resize the rectangle. Use the Font and Style menus to change the look of your text (note that Center, Right, and Left options also affect the text. You are allowed only one font size in a particular text box though you can mix different styles (like bold and italic).

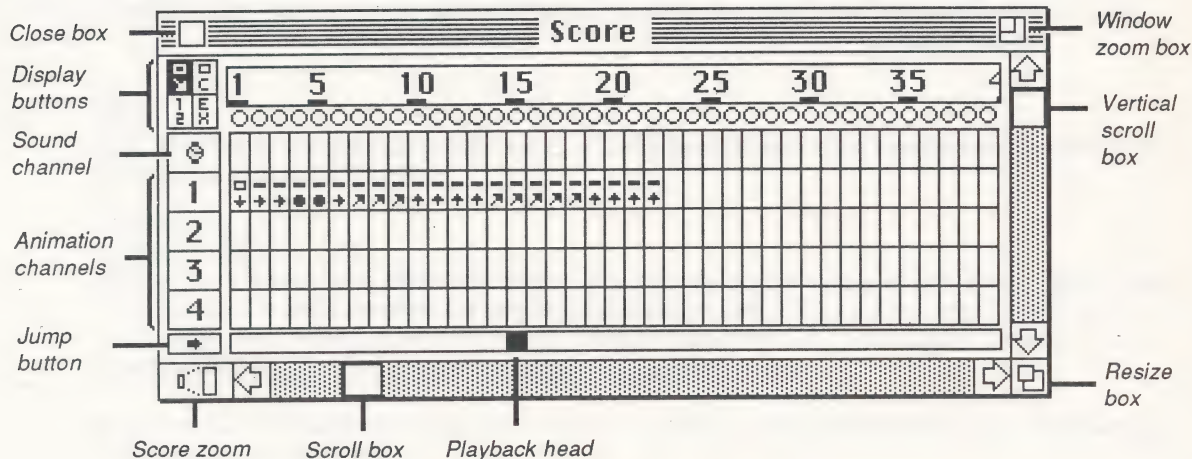
Score

The Score contains notation indicating how the action progresses. Time progresses towards the right, as indicated by the Playback Head that moves along the bottom of the Score. The Score identifies a wealth of information: artwork, motion, position and inks. The Score represents the entire movie like an orchestral score represents an entire symphony, or a script represents an entire theatrical play. It is the focal point for the editing of animations.

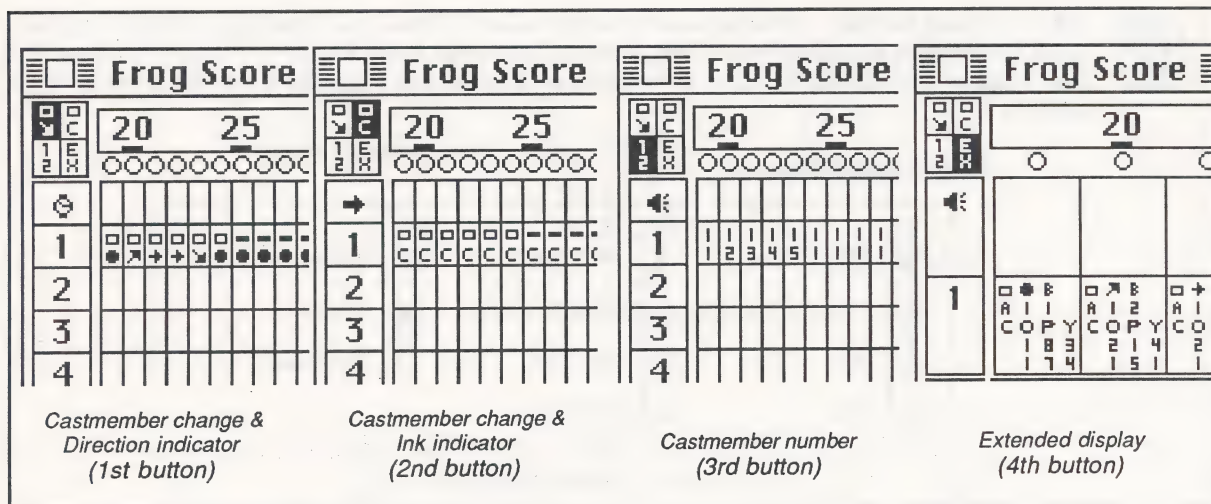
You can control the 3-dimensional effect by making one piece of art, say, a woman, pass *in front* of another, say a taxi cab. You do this in the Score by putting the woman in channel with a higher channel number than the cab. You can go back at any time and change the foreground priority by moving either the woman or cab to a new channel.

The channels (rows) represent the individual pieces of artwork on the Stage, with one castmember to a row. The small, individual boxes in the Score are called *frame cells*, or cells, for short. Each cell displays information about what is taking place at that point in the movie.

VideoWorks has a maximum capacity of 24 channels for artwork (numbered 1 through 24) and one channel for sound, tempo and transitions. The length of the movie is indicated by its number of frames. The number of frames is limited only by memory (or disk space, whichever is smaller) and can easily reach into the thousands of frames.



The Score



The four display buttons

Display Buttons

Display Buttons (in the upper left corner of the Score) let you alter what information is displayed in each cell, as shown above.

Note: The top channel of the Score is a special channel for sound, tempo and transitions. We call it the sound channel, for short. Its notation is different than for the other 24 channels. The sound channel is described separately, after these four buttons.



Direction Indicator Button – With the first button selected, the upper symbol in each cell indicates whether the castmember has changed. The lower symbol indicates the direction the castmember has moved from the previous frame (as measured at its center). See the illustrations below.

Castmember Change (upper symbol)



New castmember introduced



Castmember unchanged from previous frame

Direction Indicator (lower symbol)



Right



Up and to the right



Stop



Up



Up and to the left



Left



Down and to the left



Down



Down and to the right

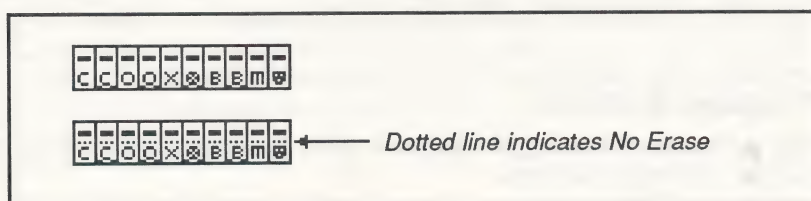


Ink Indicator Button – With the second button selected, the top symbol of a cell provides the same information provided by the first button. The lower symbol tells you which Ink is used. For example, if the letter "C" appears in this row, this indicates that the Copy ink is used. The inks are:

Ink (lower symbol)

Copy	Not Copy	Matte
Or	Not Or	Mask
Xor	Not Xor	No Erase
Bic	Not Bic	

Ink indicators



All possible inks shown



Castmember Button – When you select the third button, you are provided with information about the castmember's origin. It can either show two digits or a shape (rectangle, circle or line).

- The number is the castmember number. The two digits are oriented vertically, in the interest of saving space. Thus, is the number 12. This corresponds to the number displayed below the castmember in the Cast (but not the bank letter).
- A square, circle, rounded rectangle or diagonal line indicates that the image was created using the corresponding QuickDraw Shape.

- QuickDraw rectangle
- QuickDraw rounded rectangle
- QuickDraw circle
- QuickDraw line

Text Box text is indicated with its castmember number.

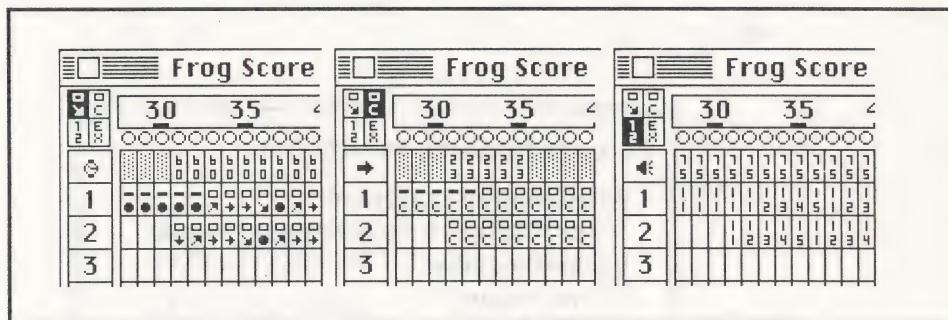


Extended Button – When you select the fourth button, the extended display is shown. You can customize the amount of information displayed in each cell. You can show as few as one or as many as five different pieces of information.

To select what information is displayed, *double-click* on . The following dialog box appears. Select whatever information you want displayed, then click OK. The X & Y Coordinates gives the location of the center of the piece of artwork on Stage. The value is the number of pixels with respect to the upper left corner of the Stage. The first value is the distance to the right, the second is the distance down. On a standard Macintosh Plus or SE screen, the edges of the Stage are X = 342 and Y = 512 (although the center can be off-screen). The Change in X and Y position setting is useful for finding out how far a piece of artwork has moved between frames.

Sound, Tempo and Transition Channel The top row of the Score is the channel for sound, tempo and transitions. The symbol at the left end of that channel indicates which of the three features is being displayed. The procedure for adding a sound, tempo or transition is described in "Adding Sound, Tempo and Transitions" in "How to Animate."

-  Tempo displays when you click 
-  Transition displays when you click 
-  Sound displays when you click 

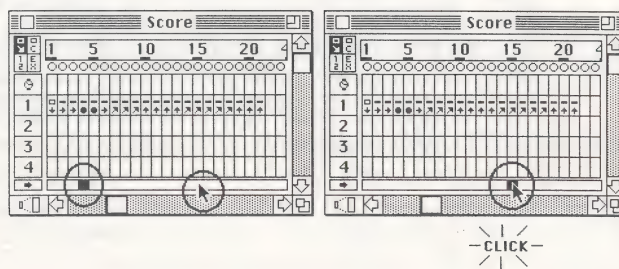
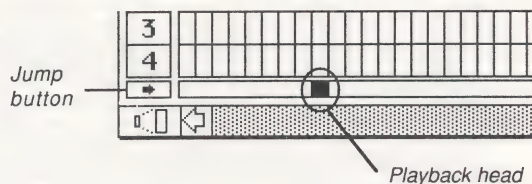


The tempo, transition and sound indicators

Other Controls

Playback Head The small black box at the bottom of the Score that moves to the right whenever an animation is playing. Its position indicates the *current frame* – the frame that is currently being displayed on the Stage. In fact, you might think of the Playback Head as the Stage indicator, since it indicates what part of the Score is currently on Stage.

In addition, you can grab the Playback Head and move the movie back and forth – move the tip of the pointer onto the Playback Head and drag it in either direction. You can also click on the Playback Head bar at the desired frame (much like the Scroll Bar), to make the Frame Pointer jump, as shown below.



Moving the Playback Head by clicking



Jump Button Use this button when the Playback Head is out of view. Pressing this button causes the Score to jump, bringing the Playback Head to the center. This is a shortcut for using the horizontal scroll bar to find the Playback Head. While a movie is running, you can keep the Playback Head in view if you keep pressing the Jump button each time the Playback Head goes out of view.

Selecting Cells You can select any frames and channels in the movie by opening the Score and dragging the pointer across them. An entire block of frames and channels can be selected by dragging the pointer diagonally across the desired block. Frames can be selected across all 24 channels by dragging the pointer across the frame numbers at the top of the Score window. In addition, an entire channel can be selected by double clicking the channel number. A block of channels can be selected by double-clicking on a channel number and dragging down. Once a block of frames is selected, it can be edited, using the Cut, Copy, Paste and Clear commands, or varied by means of the inks in the Ink menu.

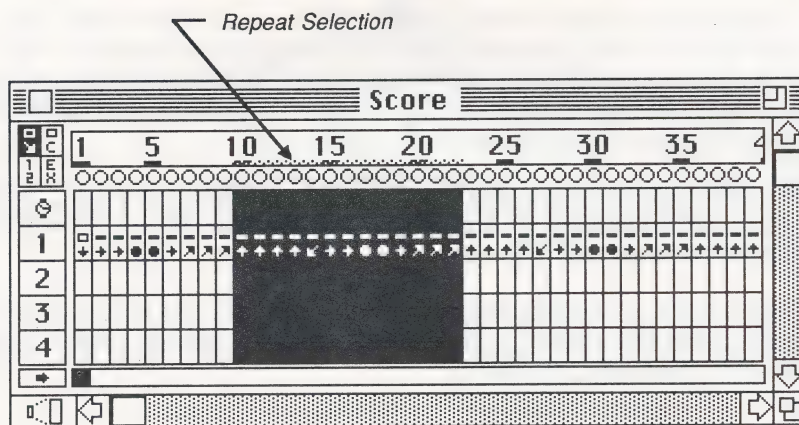
For more information on:

See "How to Animate":

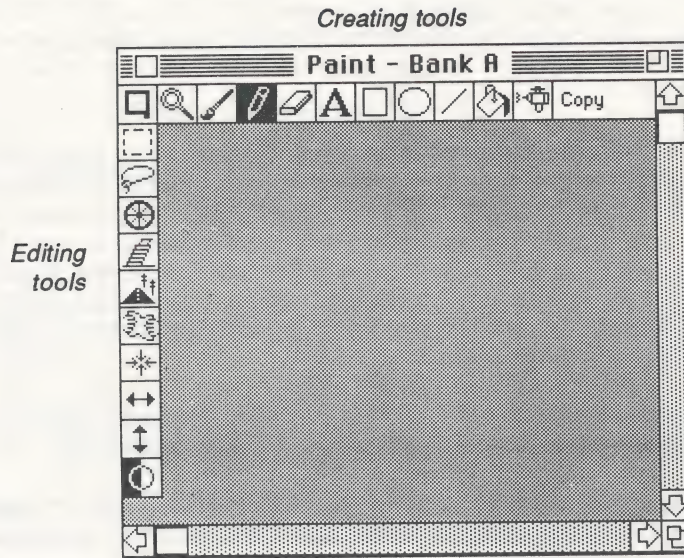
- Selecting cells....."How to Select Cells in the Score"

Scroll Bars The scroll bars are like those on any other Macintosh application. Press on the arrows to move smoothly, click on either side of the scroll box to jump, and grab the scroll box and drag to move to another part of the Score.

Repeat Selection You can loop on any part of the Score by using Repeat Selection. See "How to Repeat Just a Portion of a Movie" in the "Advanced Animation" part of "How to Animate." The gray line at the top of the Score indicates the area to be repeated.



Paint Window



Paint is the paint program built into VideoWorks, and usually provides the first step in creating an animated sequence. Although Paint doesn't have all the capabilities of its forerunner MacPaint, it does include some additional special features. For example, airbrush, rotate, slant, perspective, distort, and the Paint window itself is re-sizable and scrollable. The top row of icons are the tools for creating artwork. The left column of icons are the tools for modifying existing artwork. These are described next.

It's important to realize that every Paint easel is a castmember in the Cast. If you modify artwork in the Paint window, you are actually modifying the artwork in the Cast. You can think of the Paint window as another way of viewing the Cast. Also notice that, the active easel in the Paint window is highlighted in the Cast by a black border around the castmember. (You may have to scroll the Cast to see this highlighted castmember.)

The Paint window shows only one bank of castmembers at a time, as indicated in the title bar ("Bank A" shown above). It also shows the castmember that is currently selected in the Cast, regardless of what bank it is located in.

A shortcut for opening the Paint window is **⌘-5**. Another shortcut is to double-click on the art on the Stage—Paint opens with that piece of art on the top. (The art may still not be visible—scroll the Paint until you find it.)

The tools in the Paint window are arranged in two groups:

- Use the tools along the top row to *create* artwork
- Use the tools along the left edge to *edit* artwork



New Easel creates a new easel in the Paint window, ready to accept a new image. The image created in the new easel is placed in the first available location in the Cast window. When an easel is active, its castmember number appears in the left side of its title bar. Easels can be resized by dragging on the handle on the lower right corner, and can be repositioned within the Paint window by dragging the thick bar at the top. You can make an easel as large as the entire Stage, or much larger, by pulling it open in steps: Pull it open, scrolling the Paint window to move the easel up and to the left, pulling it open farther, scroll some more, and so on. This is useful for making scrolling background.

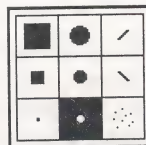


FatBits magnifies the selected easel at the point last touched by the pencil or paintbrush (just like FatBits in MacPaint) and allows modification of the image at the pixel level. Once in FatBits, clicking the icon (or the "actual size" box in the top, left corner) reverts to the original state. As a shortcut, while using the pencil, hold down the Command key and then click the mouse button – FatBits is enabled at that location in the image. All of the Paint tools work in FatBits.



Paintbrush is a drawing tool that allows you to draw with the fill patterns from the Draw Menu.

Paintbrush Shapes appear when you double-click on the Paintbrush icon. You can select the size and shape of the brush. It lets you choose from nine different shapes and sizes.



Pencil is identical to the pencil in MacPaint and works the same way whether in standard mode or FatBits. The Pencil creates black lines on a white background and white lines on a black background – the reverse of whatever color it first draws on. Double-clicking the Pencil immediately places you in FatBits. In addition, with Pencil selected, pressing the Option key turns the pointer into a Hand, letting you move the image around the window.



Eraser is identical to the eraser in MacPaint. You can erase any part of an image by dragging the eraser over it. The Eraser also works in FatBits. Double-clicking on the Eraser erases the entire screen.



Text is similar to the MacPaint text, making it possible to include bit-oriented text in your animations. Enter text by clicking the text icon, clicking on the easel where you wish the text to begin, and then typing. You can choose the Font and Style from the appropriate menus. Once you click the mouse button again, or choose a new tool, the text becomes bit-oriented rather than character-oriented. (See "Adding Text" in How to Animate.)



Rectangle generates rectangles of any shape and size. The resulting rectangle (or square) is automatically filled with the fill pattern chosen from the Draw menu (described later) and outlined

with the line thickness from that same menu. By holding down the Shift key as you drag, you can constrain the rectangle into a perfect square.



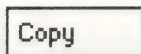
Circle draws circles when constrained, and ovals when not constrained. And just like the Rectangle (see above), the resulting ovals or circles will be filled with the selected fill pattern and outlined with the selected line thickness. Holding down the Shift key constrains the shape to a perfect circle.



Line draws straight lines at any angle. When constrained (by holding down the Shift key) the Line draws lines vertically, horizontally or at 45 degrees. The line width is determined by the currently selected line thickness in the top row of the Draw window.



Paint Bucket fills any area with the pattern currently selected at the Draw menu. It works just like the Paint Bucket in MacPaint.



Ink Indicator shows which ink is currently enabled for painting. To change the ink, make sure the Paint window is active, then choose an ink from the Ink menu. Inks affect the patterns only when you paint on top of existing art. See "Changing the Ink for Painting."



Selection Box (Marquee) lets you select any rectangular part of an image. You can then drag it to a new location, use Cut and Paste, Copy and Paste, Clear, or some of the tools below it: Flip Vertical, Flop Horizontal or Invert. To use the Selection Box, start at one corner of the image and drag diagonally across it. When you release the mouse button, the image will be surrounded by a dotted rectangle. You can now move that surrounded image anywhere within the same easel by moving the pointer into the selection rectangle and dragging. When moving a selected image, holding down the Shift key will constrain the movement to the vertical or horizontal movement. Double-clicking on the Selection Box selects the entire easel.



Lasso selects any part of a picture. Use Lasso to draw around artwork. Like the Selection Box, the artwork becomes selected so that you can move it, or use Cut and Paste, Copy and Paste, or Clear. The Lasso has the advantage that you can draw an irregularly-shaped selection – it doesn't need to be rectangular.



Airbrush lets you draw with an airbrush effect. The longer you hold the airbrush in one spot, the darker it fills in the area. You can spray with any of the patterns from the Draw menu. You can change the size and density of the spot:

- The spot size can be from 1 to 96 pixels in diameter. Set the size with the number keys (0,1,2,...8,9) across the top of the keyboard for large increments, or use the + and - keys for fine adjustments.
- The density is varied with four keys:

O	lowest density
P	low density
[	medium density (left square bracket)
]	high density (right square bracket)
- The Option key lets you spray with a randomizing effect. Backspace key toggles from white to black spraypaint.



Flip Vertical operates on artwork in the Paint window that has been selected with the Selection Box. Flip Vertical flips the selected image upside down. To flip the entire easel, first double-click on the Selection Box.



Flop Horizontal operates on artwork in the Paint window that has been selected with the Selection Box. Flop Horizontal flops the selected artwork left-to-right. To flop the entire easel, first double-click on the Selection Box.



The **Invert** tool operates on artwork in the Paint window that has been selected with the Selection Box. Invert reverses black and white within the selected rectangle. Invert also work with any artwork that is selected with the Lasso. To invert the entire artwork, first double-click on the Selection Box.



Registration Point lets you change the effective center of any artwork, which changes the position of artwork on the Stage. If the piece of art is used several times throughout a movie, every instance is re-positioned.

Setting the registration point is fast and simple. To set a registration point, open the Paint window and select the artwork you want to adjust. Click on the Registration Point tool and then click on the artwork in the Paint window at the point you want to define as the new registration point.

To return the registration points to its original position in the true center of the artwork, just select the Registration Point tool, hold the mouse button down inside the easel, drag outside the easel and then release. The registration point will automatically be set in the center. You must do this for each castmember you want centered.



Rotate lets you select artwork and rotate it any amount—from one degree through a full circle.



Slant lets you select artwork and slant it backward, forward, up or down.



Perspective lets you select artwork and enlarge or compress part of it to give the appearance that it stretches off into the distance, or that it is painted on a floor, ceiling, or side wall.



Distort lets you select artwork and distort it by pulling at any corner.

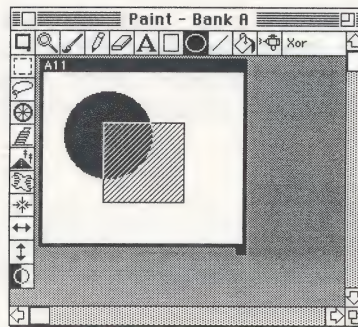
Menu Items Used with the Paint Window

The following items in the VideoWorks menus can be used with Paint.

Cut, Copy, Paste and Clear function in Paint on artwork that has been selected.

Ink Menu can be used with the Paintbrush, Paint Bucket, Airbrush, Rectangle and Circle to make paints transparent or to create other effects.

Draw Menu can be used to create patterns with the painting tools: Paintbrush, Airbrush, Paint Bucket, Rectangle and Circle.



Transparent ink (Or ink)

Text Window

The Text window is the text editor built into VideoWorks that allows you to both enter and edit text in the Cast. You can also search and replace text from the Search menu that appears.

The Text window has two uses:

- To hold text that appears on the Stage
- To hold text to be spoken by Macintalk (You can choose to have the spoken text displayed or not displayed)

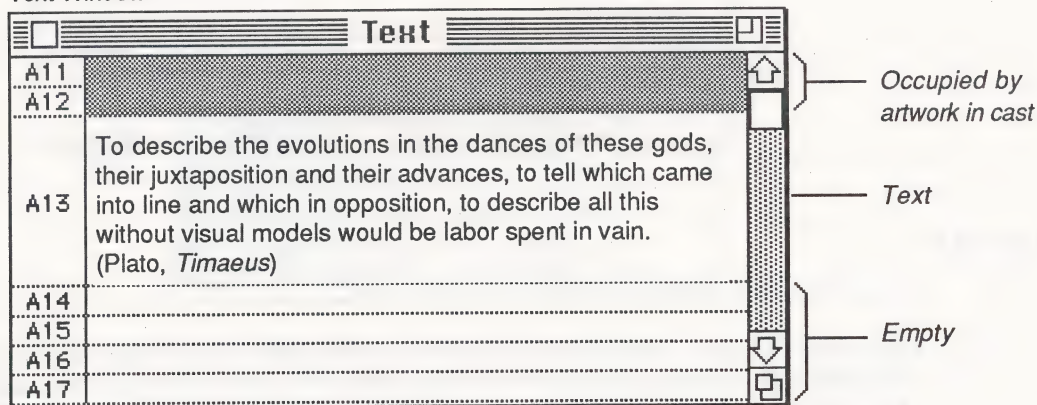
Each of the rows (cells) in the Text window represents a castmember (from A11 to H88), corresponding directly to the positions in the Cast. If a position in the Cast is already occupied by Paint artwork, that cell is grayed out. (See the illustration.) If there is no castmember in that cell, then the cell is white.

To type text into the Text window, just click in the cell—it widens to make room for your first line of text—and begin typing. This text also appears in the corresponding position in the Cast. To place it on the Stage, simply drag it out from the Cast as you would any artwork. You can edit this text directly on the Stage without opening the Text window again.

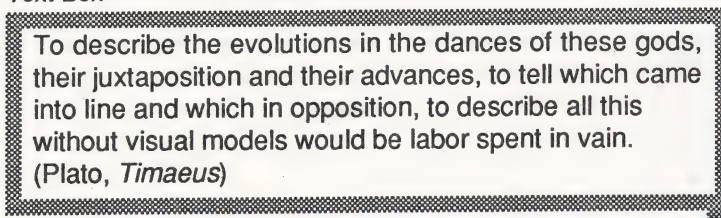
A shortcut is to create text directly on the Stage by using the Text Box at the right end of the Cast. The Text window allows you to view and edit all of the Text Boxes that are in your animation.

When the Text window is open, a Search menu is added to the menu bar. This gives you all the familiar text search options that you would find in any word processor.

Text Window



Text Box



Search Menu

(Appears in the menu bar only when the Text window is active.)

Search	
Find...	⌘F
Find Same	⌘S
Replace & Find	⌘R
Replace Everywhere	⌘E

The Search menu is for searching through text in the Text window. It is displayed only when the Text window is active.

All searches start at the currently selected point in the Text window and work downward. When a search reaches the bottom of the Text window, it wraps around and continues searching from the top again. The Search dialog box (below) appears when you choose **Find** from the Search menu.

Find searches for any text that you specify without replacing any text. You can enter a whole word or any part of a word. The "Replace with" part of the dialog box is ignored. Command key shortcut: ⌘-F

Find Same continues the search for the same text you specified under Find. The Command key shortcut: ⌘-S (the "S" stands for "Same") for quickly continuing the search.

Replace and Find does just what it says: It replaces the selected text, then searches for (and selects) the next text, and then stops. Thus, you can use this command repeatedly to replace text, stopping at each instance it finds to allow you to decide whether or not to change the text. Command key shortcut: ⌘-R

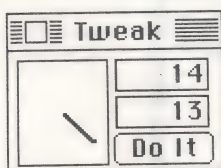
Replace Everywhere performs the same operation as Replace and Find, but does it repeatedly, non-stop. Command key shortcut: ⌘-E

The Search dialog box

Tweak

Tweak is used to precisely position art on the Stage.

To use Tweak, first select the art you want to move (either on the Stage or in the Score). Next choose Tweak from the Window menu. Then click the pointer inside the large square on the left-hand side of the Tweak window and drag the vector in the same direction and for the same distance you want the castmember to move. The vector is also displayed as a change in x and y coordinates. To move the selected art on stage, simply click the "Do It" button. You can repeatedly move the art by clicking "Do It" again and again. Note that Tweak works only on the selected castmember. To move a *long* distance, you can stretch the vector outside the bounds of the Tweak window. The Command key shortcut for opening the Tweak window is ⌘-6.



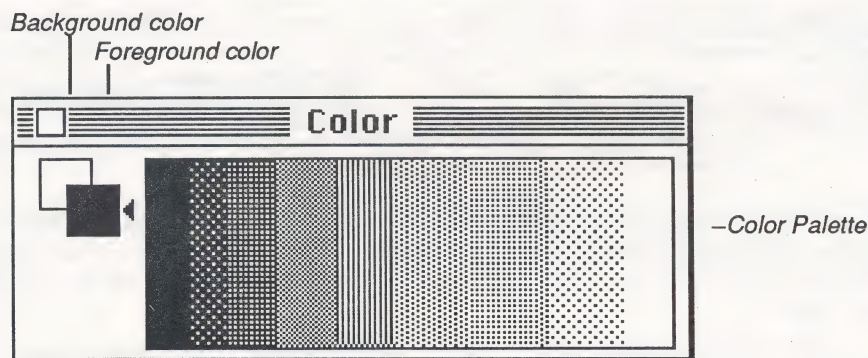
Color Window

The Color window takes advantage of any color graphics card (or cards) inserted into a Nubus slot of a Macintosh II. VideoWorks fully supports the new color Quickdraw extensions that are resident in the Macintosh II ROM. That means that regardless of what color resolution has been chosen by the user, (currently either 4 or 8 bits), VideoWorks will work. The Color window shows the current palette available (either 16 or 256 colors) and lets you add colors to your artwork in the Paint window or to QuickDraw shapes. To open the Color window, choose Color from the Window menu.

The Color command is dimmed in VideoWorks unless you have a color Macintosh – the Macintosh II with a color monitor and card. To set up for color, go to the Control Panel in the Apple menu, select the Monitor icon, then select either 16 or 256 colors. (You can do this while you're in VideoWorks.) If you leave the Color window open, you can see the colors change immediately.

When you select Color at the Window menu, the following palette appears (shown here in black and white). Click on the foreground color indicator and select a color from the color palette. The small black triangle points to either the foreground or background color indicator to show which one you can change. Then click on the background color indicator and select another color. Pull down the Draw menu to see the colored patterns available.

Some of the paint tools work in color: the Pencil, Paintbrush, Airbrush, Paint Bucket and filled shapes. You can import color images in via the clipboard or scrapbook and Fatbits works. The miniature representation of the easels in the Cast also displays in color.



A number of color inks are available to you. For more details about these inks and color in general, refer to the "Adding Colors" section of "Advanced Animation" in "How to Animate."

VideoWorks Hidden Features

Hidden features are important VideoWorks features that are not found explicitly on any menu:

- Film Loop
- Constrain

Thus, this section rounds out the two previous Menu and Windows sections which deal with only the *visible* features.

Film Loop

A Film Loop is an *animated* piece of art, kept in the Cast and that you can real-time record. To explain this, let's start with an example.

Let's say someone has already created a Film Loop called "Flipping Coin," and it resides in the Cast at position A21. To use the Film Loop, you would begin Real-Time Recording with it. The first thing you would notice is that *the coin would be flipping*, even when you hold it stationary. This is the unique characteristic of Film Loops – they have built-in motion, like a clip of film. As you move the coin around on Stage, it will continue to flip automatically. You could move it in an arc, as if it were being tossed from one side of the Stage to the other.

Now let's ask the question, "How do you get a Film Loop into the Cast?" To create a Film Loop, first you need to create the sequence as you normally would. Then you open the Score, select that sequence of art (along one channel only), Copy it, then select a position in the Cast and Paste.



Note that the artwork used in a film loop should have logical registration points set - for example, in the jumping frog a good place for the registration point would be on the shadow of the frog. This way, when the person holds the frog still, the shadow will not move yet the rest of the frog will move.

Generally, you create a Film Loop when you want to show a sequence that has some motion built-in to it. A Film Loop is fine for animating any object that rotates, such as a revolving globe or a spinning wheel. Moving art attracts your eye. You can take advantage of this with Clip Art to draw a person's eyes to a certain part of the Stage.

For more information:

- On Film Loops "Adding Film Loops"

See "How to Animate":

Constrain

When you drag an artwork or text across the Stage (or in Paint), you can constrain its motion to strictly vertical or horizontal with the Shift key. This is the standard Macintosh convention used in MacPaint.

To use constrain, press and hold the Shift key and then drag the object across the Stage.

For more information:

- On Constraining artwork "How to Constrain the Positioning of Artwork"

See "How to Animate":

Hints, Tips and Tricks

This section is divided into six categories. The tips are in no particular order:

- General Hints, Tips and Tricks
- Speed, Memory and Disk Space
- Animation Techniques (VideoWorks)
- Artwork, Pictures and Film Loops (VideoWorks)
- For Advanced Users
- Shortcuts

These are tips, not elaborate explanations. While we do not give explicit references to other parts of the manual, you will often find further explanation in the "How to Animate" section. Also use the Index or Table of Contents.

General Hints

Save your work often. There is nothing more discouraging than losing hours of work because of a disconnected plug, a power shortage, or accidentally hitting the reset switch. For similar reasons, you should keep backup copies of your favorite animations on separate disks.

To quickly view a lot of different documents, just open Overview and do a Quick Create on that folder. You can show MacPaint, PICT (MacDraw), VideoWorks and Glue documents this way.

To edit artwork from the Stage, double-click on it and the Paint window will automatically open up. The artwork will be displayed on top, which you can then modify. This is very useful short cut. You can also use this technique just as a quick way of getting into Paint, to create new artwork.

When viewing artwork on the Stage, a quick way to find its position in the Cast is to double-click on it. Not only does the Paint window open (as described in the previous hint), but also that castmember is selected in the Cast (that is, it has a black border around it).

As you create new castmembers, group them together within the Cast so that they fall into "animation groups," making them easily accessible as you work. However, once you have castmembers in the Cast, do not cut and paste existing castmembers to new positions (unless the Score is empty). Cutting and pasting between positions in the Cast will alter the animation.

Paint shows only one bank of castmembers at a time (one of bank A through bank H), as shown at the top of the Paint window. (The Paint window also shows the castmember that is currently selected castmember in the Cast.)

Use the Scrapbook to store animations temporarily. You can cut existing scenes or sequences from the Score and store them in the Scrapbook for use in later animations. This eliminates repetitive opening and closing of files. (You should be careful when storing scenes for a long time. See "Storing Sequences in the Scrapbook" in the "Advanced Animation" section of "How to Animate.")

Cut, Copy, Clear and Paste operate only on the currently active window. To demonstrate this, open the Score, Cast, Paint and Text. First click on the Score (to make it active) and pull down the Edit menu. Notice the word "Score" appears after each command: Cut Score, Copy Score, and Clear Score. Thus, with the Score as the active window, if you were to select a group of frames, Cut Score would cut the selected frames to the Clipboard. In comparison, click on the Cast and notice the Edit menu says Cut Cast, Copy Cast and Clear Cast. Also see how the Edit menu changes with Paint and Text.

However, Paste is different – it does not depend on the active window. It will either say Paste Score (if frames have been copied to the Clipboard), Paste Text (if text has been copied to the Clipboard) or Paste Graphic (if there is a picture has been copied to the Clipboard) or just Paste (if the Clipboard is empty).

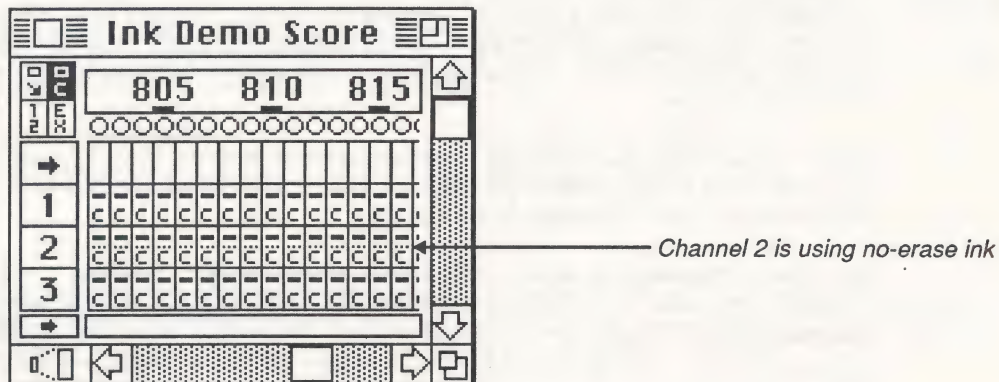
You can select a piece of artwork on the Stage and remove it with the Blank from Stage command, without affecting the other art on the Stage. Contrary to what you might expect, Clear and Cut will *not* delete it. Cut, Copy, Clear and Paste operate only in the four windows Paint, Text, Cast and Score.

Become aware of the Channel Indicator. It is very useful. You can click on artwork on the Stage and glance at the Channel Indicator to tell immediately which channel it's in, without ever opening up the Score. Also, whenever you drag a castmember onto the Stage, you can glance at the Channel Indicator to see which channel that castmember was automatically assigned to. Also, in Real-Time recording you must explicitly select a channel before recording if you do not want the existing channel erased – again, click on the Channel Indicator to avoid having to open the Score.

Like any other Macintosh application, VideoWorks uses whatever fonts are available in the system. If you have any non-standard fonts you like, add them to the System with the Font /DA Mover and they will appear in the Text menu.

Use the No Erase option (in the Ink menu) to create a trailing effect on the Stage. This is especially useful in grabbing someone's attention. This technique is used in "How to Create an Animation that Draws Handwriting" – creating an animation that draws out handwriting on-screen, such as your signature.

Dotted Line in the Score. If you've ever seen a dotted line in the Score and wondered what it meant, here's the answer: The castmember with the dotted line is using No Erase ink for those frames (as shown below).



Use Shift-Enter. When editing with several windows showing, the easiest way to start a movie is with Shift-Enter. (Don't confuse the Enter key with the Return key.) All windows disappear and the movie begins. To return, press the period (.) key.

You can scan back and forth through an animation at your own pace in either of two ways:

- Move the cursor into the Frame Counter on the Panel, hold down the mouse button and drag left or right. The frame number and scene change together.
- Open the Score and drag the Playback Head back and forth.

Of course, you can always use Step (⌘-S) and Back Step (⌘-D), as well, to move one step at a time. The Playback Head is analogous to the "scratch" bar used to spin an LP record back and forth, used to hear the needle scratch for the start of the music.

If you create a new file and notice that objects do not have the normal Copy ink mode, then change the default ink. The check mark in the Ink menu indicates the default ink. You can change the default by selecting an Ink mode when nothing is selected in any window.

Use the Shift-click shortcut in the Score to select a large number of frames quickly. Click at the initial frame, use the scroll bar to move to the last frame, then hold down the Shift key when you click again.

You can move the Panel anywhere on the Stage by grabbing it anywhere around its edges and dragging it.

Oops, I made a mistake. All editing actions are undo-able including Burn Scene, in case you choose it by mistake. (As is standard, the items in the File menu – New, Open, Revert, Save, Print – are not undo-able.)

Sound and pictures are always stored in separate files on your disk. The pictures are stored in the VideoWorks movie file. All sounds that are displayed in the Sounds menu (except Macintalk) are stored in the Sounds file. Macintalk is contained in its own file. Therefore, when you copy a movie file to another disk, be sure to copy the Sounds file along with it if it contains customized sounds.

If you have a custom Sounds file, the most convenient method is to keep all related files in the same folder with that Sounds file. When using digitized sound, the Sounds file can be *big* – larger than the graphics portion of the animation.

Learn to use the Command key equivalents of the more common functions to speed up your work. For example, use Command-S to step a frame rather than moving the mouse to the Panel to hit Step. With the Command key equivalents you can operate faster by keeping one hand on the keyboard and the other on the mouse. Having trouble remembering Command Key shortcut for opening the Score? "*Four score and seven years ago...*"

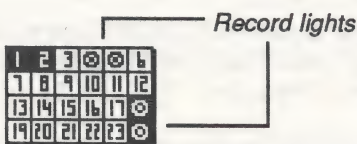
Do not use Cut and Paste to move castmembers from one position to another in the Cast (unless the Score is empty). Moving a castmember in the Cast would cause it to disappear from the Stage. This is because the Score keeps track of artwork by the Cast position number you see in the Cast (A11, A12, ...), and the artwork would now have a new cast position number.

You can make sound vary according to the position of artwork on the Stage. Both Y-Synthesis and YX-Synthesis enable the position of the art on the Stage to determine the sound. As the art moves down the screen, the sound gets lower in pitch; as it moves up, it gets higher in pitch. Y-synthesis produces a pure tone, while YX-Synthesis produces a raspy tone that also gets slightly louder as the art moves to the right. The effect is a direct synchronization of sound to video. See YX-Synthesis in the "Adding Sound, Tempos and Transitions" section of "How to Animate" to find out how this is done.

To quickly re-position artwork on the Stage *everywhere it appears*, change its registration point. This is an amazingly easy way to re-position art. Open Paint to the piece of art, click on the registration tool, then click on the art to re-locate its registration point (marked by the intersection of the two perpendicular lines).

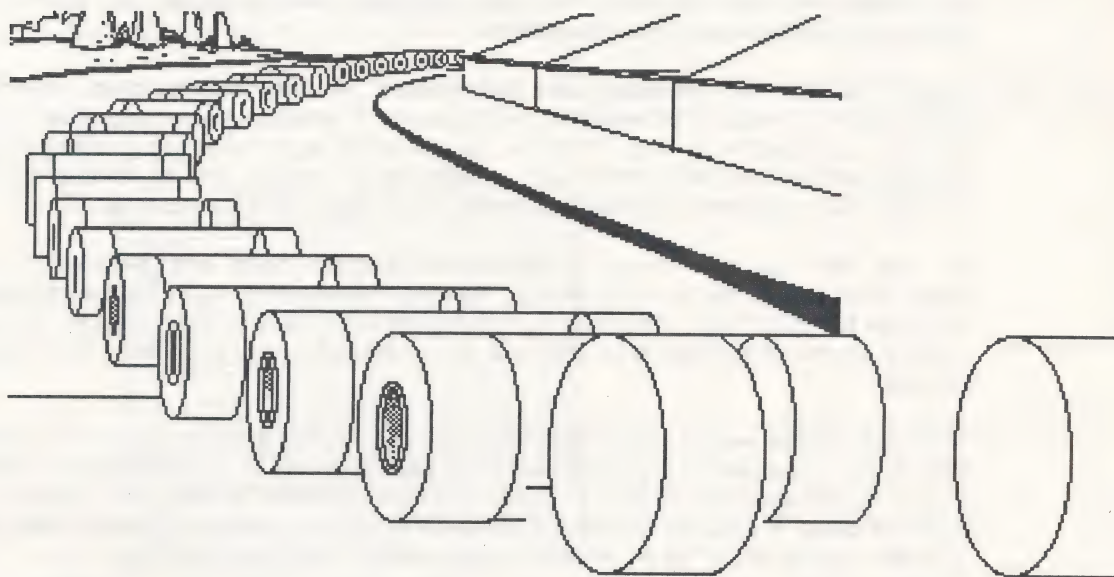
Don't overlook the selection of brush shapes that are available in the Paint window by double-clicking the Paintbrush.

Use Paste Relative to repeat a short sequence (such as a single frog jump) across the Stage, Paste Relative is a special way of pasting a copy of a sequence so that the start the second copy of the sequence is automatically positioned at the end of the first sequence. This concept is illustrated very well in The Frogs tutorial.



Ever wonder what those little circles in the Channel Indicators mean? Those are *record lights*. A record light indicates that when you Step, that channel records into the next frame. The record light comes on when you drag artwork on the Stage, to do frame-by-frame animation.

Ever get lost in the Score, and you can't find where sequences begin? To help you keep your place, you can click on the round frame markers at the top of the Score to mark the beginnings of sequences or other important points. These markers also denote the frames to be printed.



Speed, Memory and Disk Space

To reduce the size of your animation, keep the following in mind.

- **Animate only the part of the picture that has to move.** This saves disk space and keeps the animation speedy. For example, if you want to create a face with only the lips moving, don't redraw the entire face for each frame. Rather, use the same face as the castmember, changing only the lips each time. By the same token, use smaller figures (castmembers) whenever possible, since this will result in cleaner animations the bigger the image, the more likely it is to "flash" from one frame to the next.
- **Reduce the number of large castmembers by sharing common parts.** Analyze the Paint artwork to see if parts of large castmembers are identical. If so, you can slice them up, discard common parts that are extra, and reconstruct the artwork from these pieces. While this is extra work, it may be what you need to squeeze a large document onto a disk.
- **If you need to reduce the size of a large VideoWorks movie, you can try copying the entire Score to another document.** In the process of copying, any castmembers that are not used in the animation are automatically discarded. Also, all remaining castmembers are crowded together in the Cast (towards A11), removing any empty positions. The animation runs exactly as it did before. To select the entire Score for copying, drag the pointer across the frame numbers at the top of the Score.
- **Use the QuickDraw Shapes whenever possible for stationary artwork.** Look through your existing Paint documents for large areas where you can substitute QuickDraw shapes. You might replace a full-screen, rectangular gray Paint background with an identical QuickDraw background.

VideoWorks really pushes the Macintosh to its limit, squeezing all the performance possible. The biggest indication of this is that all but the simplest animations require you to push the speed control to the maximum. When you open up the Score and watch the Playback Head, you will notice it slows down at points where more channels are introduced, or where larger artwork begins moving.

Realize that adding channels, increasing the size of Stage objects, or stretching will slow down the animation. Therefore, before starting your animation, try to anticipate any loss of speed that may result as you add channels.

There is a limit to the size of a VideoWorks movie, determined by available memory. The limitation exists because a VideoWorks movie must be *entirely* loaded into memory before it can run. For a 1 megabyte Macintosh, the theoretically largest *single* movie you can run is about 550K (a stripped down system takes up about 150K and VIDEOWORKS II takes up about 275K). This includes the sounds you use, not necessarily the entire Sounds file. See the next hint for a way to work around this limitation for larger files. When you reach that limit, VideoWorks will notify you that you are running out of memory.

Practically speaking, editing movies larger than roughly 3000 frames gets very sluggish, especially if most or all of the channels are filled. For example, it might take 30 seconds or longer to Cut and Paste a single frame across all channels. You will probably find you need to keep movies to under 250K or 300K, and editing will be easier if you keep them under 100K to 150K. When thinking about disk space, be aware that a movie expands slightly as it is loaded into memory.)

There is a way to run a movie of *any* length (up to the available disk space), working around the memory limitation mentioned above. You do this by breaking the long movie down into movies shorter than about 100K, running those movies in series in the Overview window.

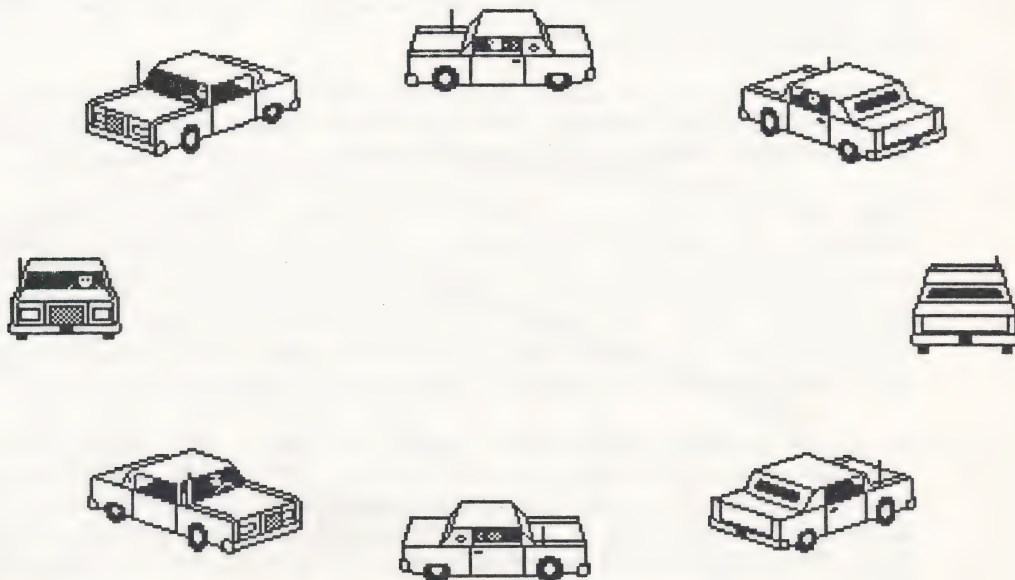
Give the Macintosh a chance to catch up. If your animation is running up against the speed limitations of the Macintosh (as is true of most large movies), when cutting from one scene to another (that is, to a scene with a new selection of artwork), insert a blank frame down all 24 channels to give the Macintosh a chance to "catch its breath." The result will be a cleaner segue.

Open windows (especially the Score window) can slow down an animation. When adding sound to an animation, synchronization is critical. Because open windows slow down the animation slightly, be sure to run sound animations with all windows closed (by choosing Stage from the Control menu).

Take advantage of the pauses the Macintosh has to take. For instance, when running a series of movies (using Overview), the display pauses on the last frame of a movie while the next movie is loading into memory. Make this last frame something that naturally would require a pause, such as a paragraph of text to be read – the viewer will not be so likely to notice the pause.

Use Matte and Mask inks sparingly. These inks use twice the memory of all the other inks (Copy, Or, Xor,...) and will slow down your animations if used to excess. In particular, use Matte and Mask only for those frames when one object passes in front of another, and then only in the foreground channel.

Some sounds have no effect on speed, while others have a tremendous effect. The standard sounds (Basic, Explosion, Weapons, etc.) do not take much memory, and slow the animation only slightly. Digitized sounds takes a lot of memory but slows the animation only slightly. However, Macintalk (speech) requires quite a lot of memory *and* processing time. In fact, all animation stops cold when Macintalk is speaking. So design Macintalk to be happening when there is no action on the Stage.



Animation Techniques (VideoWorks)

Plan ahead, with foreground priority in mind. Reserve channels 1 for background art. You might start the foreground art at channel 3, leaving channel 2 open in case you should want to go back and put in other art just in front of the background. There's absolutely nothing wrong with skipping channels when creating a movie – that's why we give you so many channels to work with. VideoWorks lets you swap channels easily if you need to.

When using text in your animations, be sure that the text remains on the screen long enough to be understood by the viewer. You should consider, for example, that as the creator of the text, you will have read it many times and so may tend to underestimate the amount of time the viewer may need to read it. Consider also that if you have movement on the screen while the text is displayed, the movement may distract the viewer from reading the text.

To achieve maximum smoothness in your animations, use the Tweak and Constrain functions. (This will help you move clouds smoothly across the screen, for instance.) The Constrain function is accessed by holding down the Shift key, and works just like Constrain in MacPaint.

Do some sketching in Paint with stick figures before creating your final castmembers for movements that require a series of changing castmembers, such as a person walking. Do this to see if you can get by with fewer castmembers for a given movement. Conversely, if your animation appears choppy, you may need to create intermediate castmembers.

Don't hesitate to consult your mirror or your friends when producing facial features to make your animations appear as real as possible. Model your animations upon real life.

Synchronize your sounds and animation. If, for instance, you go from a screen of graphs to a screen of charts, add a little musical ditty at exactly the frame that the screen changes to enhance the transition.

Transient sound effects (BDrum, LTom) cannot be strung together to make one longer, continuous sound. In fact, you must put a blank frame between them in the sound channel to allow them to retrigger. Longer, steady sounds such as explosions, can be strung together in the sound channel to continue for as long as you want.

Switching an Entire Series. A powerful way to use Switch Castmember is for replacing not just one frame of art, but an *entire series* of frames all at once, such as a background. You do this by selecting the series of cells in the Score, selecting the new castmember in the Cast, and choosing Switch Castmember.

Momentarily suppressing the selection box around artwork. If you are working on the Stage and have a *very small piece* of artwork selected, it is often very difficult to see the art itself because the selection box around it (with the handles) overwhelms the small artwork. You can momentarily suppress the selection box by opening the Score, and holding the mouse button down on the Playback Head.

It's fairly easy to create a sequence where artwork moves smoothly across the screen. Use the In-Between command to quickly produce a smooth, straight-line motion. You choose the artwork at the endpoints, and the In-Between command fills in the intervening frames for you.

It's easy to scroll text up the screen, like credits at the end of a movie. This is an interesting way to introduce a name, slogan or text to the viewer. It is useful for a self-running demonstration, or simply as a change of pace in a movie. See Tutorial #7.

It's easy to convert an animation to a black background. Turn the lights off by clicking on the light switch in the Panel, then select the artwork in the Score and apply NotCopy from the Ink menu. (For more advanced transparency or different effects, try Xor).

Don't hesitate to borrow animation sequences you particularly like from the "Clip Animation, Artwork and Movies" disk. You can combine these with original animations by copying from one file to another.

You can easily create shapes that have dynamically changing patterns as they move across the Stage. You use QuickDraw shapes and change the pattern at each frame. This is a special effect with a lot of dazzle, yet with very little expenditure of memory. You can also change the line thickness at each cell. Notice that you *cannot* do this with Paint artwork unless you create a new castmember for each new pattern, which uses a lot more disk space and memory.

Artwork Techniques (VideoWorks)

Animate business presentations using chart and graphs from Excel, Works, Illustrator, Power Point, Cricket Graph and other products. Anything that can be copied onto the Clipboard (or Scrapbook) can be pasted into the Cast or Overview.

Use art from the "Clip Animation, Artwork and Movies" disk supplied with VIDEOWORKS II (or other art disks on the market such as clip art) to create your own animations.

Use a video digitizer to add real-world pictures into the VideoWorks Cast and an audio sampler to add real-world sound to the Sounds menu. Once these are in VideoWorks, you can animate or combine them with your own artwork.

The quickest way to copy an entire image from one easel in Paint to another is to go outside Paint to do it – use the Cast instead! Select one position in the Cast, Copy it, select another position in the Cast and Paste into it.

You can stretch or shrink any art on Stage by pulling its handles. Paint artwork can distort noticeably when you change its size. You can also create a sequence where the art starts small and grows, even as it moves across the screen. This is a good use for In-Between. Follow the procedure "How to Stretch Artwork As It Moves." This works for bit-mapped objects as well as QuickDraw Shapes (but not for text from the Text Window).

In the Paint window, you can create a background as big as you want – it can be 5 feet wide by 2 feet tall. You can then scroll this elaborate background during the animation, for instance to show motion. Do this by opening the Paint window, clicking on New Easel, and dragging the easel *larger* than the Paint window. You will need to scroll the Paint easel in order to do this. (Of course, when an easel is this large, you cannot see the entire easel all at once.)

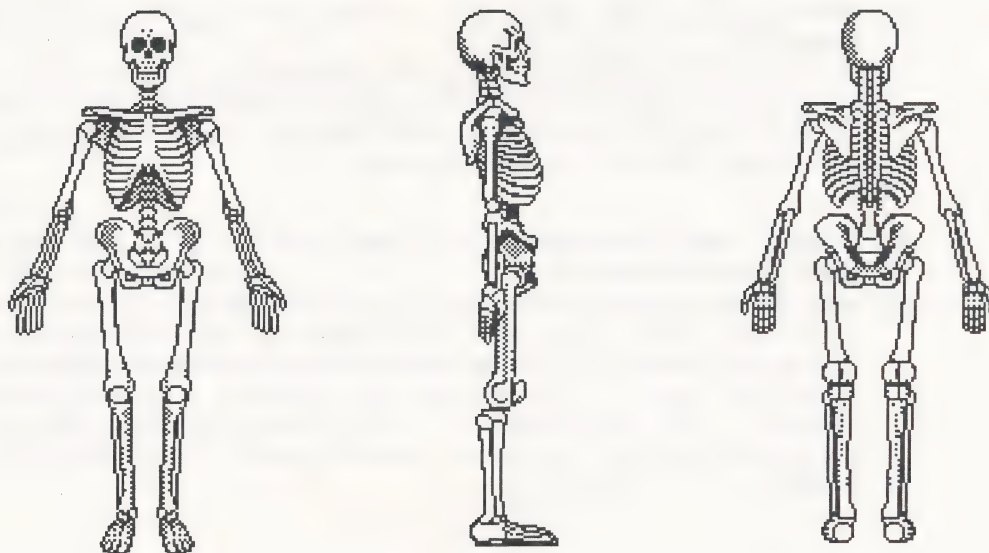
Use different Inks in the Paint window for interesting effects – For example, use Bic or Xor ink when typing text in the Paint window. Try using Xor with the Paintbrush, or the Rectangle tool.

For Advanced Users (VideoWorks)

Copying and Pasting a Sequence. When you copy a sequence from document A and paste it into document B, VideoWorks will ask for document A when you perform the paste. This is because the Copy operation copies the castmember numbers rather than the castmembers themselves to the Clipboard. At the time of the Paste, access to the castmembers themselves is needed. Therefore, do not alter, rename or destroy document A until you have pasted the sequence into document B.

You can automatically capture rotated shots of 3-dimensional art (in Easy 3D or Super 3D, for instance), by using Tempo. Tempo is a program which allows you to automatically repeat command sequences. You record a sequence to repeatedly (1) rotate the object and (2) save it to the Scrapbook. You can walk away and come back hours later when its job is completed. If you were to rotate an object through 360 degrees at 5 degree increments, that's 72 shots to be captured. Once you've done this, you can paste these 72 shots into the Cast from the Scrapbook.

It is possible to view all 24 channels in the Score at once. To do this, first click on the box in the upper *right* corner of the Score to make it full-screen. Then double-click on the Expanded button in the upper *left* corner of the Score. De-select all options but one. You should now be able to see all 24 channels. This is great for a quick overview of all channels.



Frequently Asked Questions

Q. I can't find artwork that I put on the Stage

A. If you can't see artwork on the Stage, try these:

1. Look to see if you're using a clear ink mode, such as Bic. The artwork might be there but just invisible. Open the Score, switch to the ink display and check. For more information, refer to "Using Inks" in "How to Animate."
2. Look to see if the artwork is hidden behind other artwork. If so, you can click on its channel indicator, which selects the artwork on Stage and allows you to re-position it.
3. Maybe it's behind a window, such as the Cast or Panel. Press Command-1 to clear the windows from the screen and press Command-1 to bring them back.

Q. When I am looping on my movie, why does it go blank at the end?

A. This happens because there are blank frames at the end of your movie. This occurs when you have removed a sequence from the end of your movie – yet the movie continues to play as far as it used to. To remedy this, clear those frames from the Score as follows. 1. Start at the end of your animation and select the troublesome "blank" cells by dragging to the right across the frame numbers at the top of the Score. 2. Choose Clear Score from the Edit menu.

Q. Why doesn't cut and paste in the Score work like a word processor?

A. What you're referring to is the fact that when you select part of the Score and choose Cut, the frames to the right do not move in to close up the gap. Actually Cut *will* close up the gap if you are cutting or pasting across all 25 channels (the quick way to select across all channels is to drag along the frame numbers at top). See "How to Insert and Delete Time In A Movie" in the "How To Animate" section.

Q. Where did my Sound menu go? Nothing happens when I try to pull it down.

A. This means your Sounds file is missing. The Sounds file contains the sounds that accompany any animation. Locate the Sounds file and put it in your System Folder, or the folder with the VIDEOWORKS II program, or the folder with your movies. Also refer to "Sound Files" section at the end of the VideoWorks Reference.

Q. I moved one of my castmembers from position A11 to A21 and now it's gone from my movie.

A. VideoWorks keeps track of castmembers by their position in the Cast window (i.e. their castmember number). If you move artwork from A11, the Score keeps looking at position A11 for that artwork. If you want to move a piece of artwork to another place in the Cast, follow these steps: 1. Copy and paste the castmember to its new position in the Cast window; 2. Select all the places in the Score that refer to that castmember and Switch Castmember (in the Edit menu) to the new position; and 3. Clear the castmember from its old position.

Shortcuts

Shortcut

What it does

1. General

Numeric Keypad

Enter.....	Play
1,4	Backstep
2,5,Period	Stop
3,6	Step
0	Rewind

Save Changes? Dialog Box

Y, N, or C keys.....	Selects Yes, No, Cancel
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2. Overview

Shift-Play	Goes directly to Stage and plays slide show
Shift-Step	Replays the current slide
Step while playing	Immediately advances to next slide
Click mouse on Stage	Advances to next slide (same as Step)
Shift-click mouse on Stage	Replays the current slide
Pressing spacebar	Toggles pause/resume of animation
Click playback head	Displays that slide in Overview
Option-Drag Icon	Duplicates icon
Command-Click Icon	Selects whole column
Double click on any icon	Equivalent to Get Info
Backspace selected icons	Deletes them in Overview window
Click on icon	Selects single icon
Command-Click on icon.....	Selects column of icons
Shift-click on icon.....	Selects several icons
Draw a selection rectangle around icons	Selects lock of icons

3. VideoWorks

Recording

Option-click on artwork on Stage	Toggle record light on or off
Option-click in channel indicator	Toggle record light on or off
Option-Command-drag mouse on Stage	Real time record artwork selected in cast
Creating a Film Loop:	
Select sequence in score (one channel only)	
Copy or Cut	
Paste into an empty castmember (must keep original castmembers in cast).	
Shift-In-Between -or-	
Shift-Command-G	In-Between on Film Loop selected in Cast window

Panel

Shift-Play	Goes directly to Stage and plays animation
Step	Will record if Record Light on
Drag up or down in Frame Indicator	Advance or reverse action of animation
Click and drag on selection indicators	Establish selected frame range
Click on channel indicator	Select channel
Option-click on channel indicator	Turns record light on

Score

Double click channel number	Selects all frames in an entire channel
Double click channel number and drag	Selects all frames in multiple channels
Drag across frame numbers	Select all channels for those frame numbers
Shift-click on frames	Select a large section or extend a selection
Jump button	Scrolls window to Playback head
Option-jump button	Scrolls window to first selected frame
Click in playback head bar	Move Playback head to that frame location
Drag playback head	Move forward or backward through animation
Zoom button	Enlarges display of frames
Selecting a frame in the Score	Selects the object on the Stage



Display Indicators:

Relative motion indicator switch	Shows the position of a castmember in relationship to its position in the previous frame
Ink indicator switch	Shows what inks (Copy, Or, Matte, etc.) are being used
Castmember number indicator switch	Shows what castmembers are being used
Expanded information indicator switch	Shows several types of info at once
Double-click Expanded Info switch	Select types of info to display

Stage

Shift key -	Select multiple pieces of artwork
Shift key & drag	Constrains movement horizontally or vertically
Click & drag resize handles	Resize artwork
Shift Click & drag resize handles	Resize proportionately
Click on Playback Head in Score	Temporarily removes selection boxes on Stage
Backspace Key	Same as "Blank From Stage"
Command-click artwork on Stage	Opens Paint window and corresponding easel
Selecting artwork on the Stage	Selects it in the Score

Cast

Double click in Cast window	Equivalent to "Switch castmember"
Selecting castmember in the Cast	Selects corresponding easel in Paint
Selecting an easel in Paint	Selects corresponding castmember in the Cast

Artwork may be **directly pasted into the Cast** (helpful with large pieces of artwork).

Cast members can be **duplicated** by copying a castmember and pasting into an empty castmember.

When creating a **custom mask**, always paste the duplicate castmember in the position directly following the original.

Color

Option click in Color window	Sets background color
------------------------------------	-----------------------

Paint



Easel

Click on iconCreates new easel



Magnifying glass

Click on iconOpens Fatbits



Paint brush

Double click iconSelects brush shape
 Select pattern from Draw menu in which to paint
 Painting can be constrained by holding down Shift key



Pencil

Double-Click iconOpens Fatbits
 Drawing can be constrained by holding down Shift key



Eraser

Double click iconErase entire easel



Text

Select font, size, style, from Text menu



Rectangle and circle

Select fill pattern and line thickness from Draw menu
 Shape constrained to circle or square by holding down Shift key



Line

Select thickness from Draw menu
 Shift keyConstrains horizontally,
vertically, or at 45°



Airbrush

(Settings can be altered on the fly)

Air Pressure:

OLight
 PMedium
 [.....Heavy
]Maximum

Spray Size:

1,2,3...01= smallest, 0=largest

+,-Change spray size by one pixel

Spray Pattern:

BackspaceAlternates black and white
 OptionRandomize
 Select pattern from Draw menu

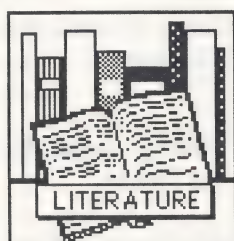
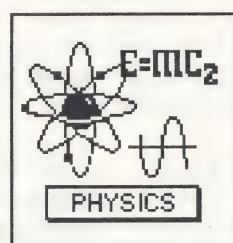
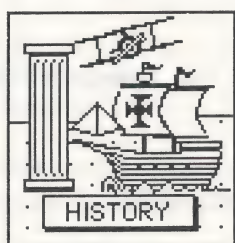
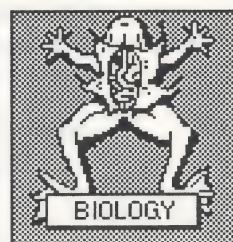
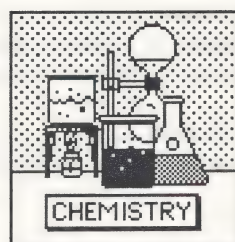


Marquee

Double click iconSelects entire visible area of easel
 Shift keySelected area is a square
 Command keyStretches the selection

Miscellaneous

Press ~ (tilde) keyEquivalent of undo in Paint
 Shift keyConstrains all drawing tools
 Command-clickToggles Fatbits on and off



Sound Files

The following two files are important for the operation of sounds in VIDEOWORKS II. They are both present on your VIDEOWORKS II Program disk.

- The **Sounds** file contains the sounds that are available at the Sound menu. When the Sounds file is not present, in fact, the Sound menu will not pull down.
- The **Macintalk** file is necessary for making Macintalk work.

Sounds File and Macintalk File

Sound and animation are always stored in separate files on your disk. The Sounds file contains all of the sounds in the Sound menu. Therefore, when you copy a movie file to another disk, be sure to copy the Sounds file along with it. When using digitized sound or Macintalk, the Sounds file can actually be larger than the graphics portion of the animation.

You can customize your Sounds file by adding sampled sounds or MusicWorks melodies to it. If you have a movie that uses a customized Sounds file, you should think of the Sounds file as just part of the movie. When you move the file to another location, you should be sure to transfer the customized Sounds file along with it. It's easiest to keep them both in the same folder and just move the folder.

Required Location of Sounds and Macintalk Files

The Sounds file and Macintalk file must be located in certain folders in order to work:

File	Must be located in
 Macintalk	System Folder or VIDEOWORKS II folder or Same folder as movie
 Sounds	System Folder or VIDEOWORKS II folder or Same folder as movie

When the Macintalk file is located in the correct folder, the menu item "Macintalk" appears in the Sound menu. Similarly, when the Sounds file is not located in the correct folder, the Sounds file will not pull down.

Using More Than One Sounds File

If you customize your Sounds file, you can create several different ones for different movies. You can use as many Sounds files as you want as long as you put each Sounds file in a separate folder along with the movies that use that Sounds file.

If a movie is in a folder that has no Sounds file, VIDEOWORKS II will look for it in the following order:

1. Folder containing the movie
2. VIDEOWORKS II folder
3. System Folder

Troubleshooting the Sounds

If you cannot get Sounds to work, try these:

1. Check that the Sound menu actually pulls down. If it doesn't, that means VideoWorks cannot locate the Sounds file. The Sounds file is probably not in the correct folder – it should be in either the folder with VideoWorks (player or program) or the System Folder.
2. Check that the sound is turned on at the Panel in VIDEOWORKS II. The loudspeaker icon should be white on a black background.
3. Check to see if any sound has actually been assigned to the sound channel. Open the Score, click on the Castmember Display Button and look in the sound channel to see if sound is assigned where it should be. You can identify the sound by its number.

Troubleshooting Macintalk

If you cannot get Macintalk to work, first check to see if sound works at all by doing steps 1 and 2 from the previous procedure. If Macintalk still doesn't work, try these:

1. Make sure the Macintalk file is in the System Folder or the folder containing VIDEOWORKS II.
2. Check to see if you are using a castmember position in the range A71 to A88.
3. If Macintalk still doesn't work, try removing any special symbols (% , \$, !) from the text.

VW Preferences File

A file named **VW Preferences** is automatically created by VIDEOWORKS II when needed, and is therefore not a file you need to worry about. (It is unrelated to sounds.)

The VW Preferences file stores settings that you specify in the Preferences menu item in the Control menu. This file stores the information you set in Preferences dialog box, as well as a few other things. These include: your current choice of Long or Short menus, screen size, window positions, auto-save of Overview documents. It saves the launch application creator types for MacPaint and MacDraw documents in Overview. It also saves whether you were last working in VideoWorks or Overview and opens that application when started by double-clicking the VideoWorks icon.



Glossary

This section includes definitions for words used in VideoWorks, Overview and animation in general.

activate	Same as select . To specify which castmember, artwork, channel or cell will receive the next command or set of commands.
active window	The frontmost window on the desktop; the window where the next action will take place. An active window's title bar is highlighted with parallel lines.
alert box	A box that appears on the screen to give a warning or to report an error message.
animation	A series of static images which, when presented in rapid succession, create the illusion of movement. The images can be recorded in analog form on a filmstrip, or digitally on a floppy disk.
animation stand	A device invented in the 1930's for creating cartoon animation. It consists of a special animation camera for exposing one frame at a time, and several pieces of glass on which are laid cels (the individual pieces of art that make up the film animation).
application	A program written for some specific purpose, such as word processing, data base management, graphics, or animation.
art	Same as artwork .
artwork	Any picture. It can be created in Paint, it can be a geometric primitive, or it can be brought into VideoWorks using Art Grabber+ or the Clipboard. Same as art .
ASCII	ASCII is a worldwide standard for representing text as numbers, rather than as bits.
backup disk	A copy of a disk. It's a good idea to make backups of all your important disks and to keep them in a safe place.
button	A rectangular region (like the Yes, No and Cancel buttons shown to the left) in dialog boxes where you click to cause an action to occur. See also mouse button.
castmember	A member of the Cast. Each different piece of artwork that appears on Stage is a castmember (except QuickDraw shapes).
castmember number	The number that appears below the castmember in the Cast.
cel	(Short for celluloid) A transparent sheet of celluloid acetate on which drawings are laid. Cels are used in film animation, not in computer animation.
cell	(Same as frame cell.) One frame of a channel. (This is in contrast to cel with one "I".)
chaining	Chaining is what happens when you use paste relative. Each paste creates a chain with the last piece of artwork, which is technically called a relative offset.

channel	A row in the Score, where artwork resides. A VideoWorks movie has 24 channels for pictures and 1 for sound. Each channel corresponds to a piece of artwork displayed on the Stage at any one frame.
chunk	Chunk is the amount of pixels a transition moves. You can manually set how big a chunk is for every transition with Get Info. See delay .
click	To briefly press and release the mouse button.
clip animation	Small, independent animation sequences that can be used with any type of presentation material. The clip animation is inserted in front of a slide in Overview. More than one clip animation can be shown at the same time.
close box	The small white box on the left side of the title bar of an active window. Clicking it closes the window.
column	A set of icons in an Overview document arranged in a vertical column.
computer animation	A form of animation which uses high-speed manipulation of computer artwork to create images moving and changing shape.
current frame	The frame which is currently displayed on the Stage. The current frame number is shown in the frame counter in the Panel. In the Score, the Playback Head points to the current frame.
cursor	A vertical bar displayed on the screen marking where the user's next action will take effect or where the next character typed from the keyboard will appear.
cut	(1) The instantaneous change from one scene to another. (2) A command in the Edit menu for removing a selection and placing it on the Clipboard (written as Cut with a capital "C").
delay	Delay is the amount of time (in 1/60's of a second) to pause between each chunk in a transition. Setting the delay will control how fast a transition occurs. See chunk .
dialog box	A box that contains a message requesting more information from you.
dissolve	An effect in which one scene gradually fades out at the same time that a second fades in.
double-click	To press and release the mouse button twice in quick succession without moving the mouse. If your clicks are too far apart, they will be interpreted as two single clicks. You can adjust the speed at which you must double-click by choosing Control Panel at the Apple menu.
drag	To position the pointer on an object, press and hold the mouse button, and move the mouse. When done moving, release the button. When you drag, it is important to hold the mouse button down while moving the mouse. You can drag the pointer across frames in the Score to select them, or drag an object across the Stage to a new location.
easel	A window in Paint in which you can draw artwork. You create a new easel by clicking on the New Easel tool. Its icon is shown below.



edit	To change or modify. For example, to insert, remove, replace, or move artwork in an animation.
film animation	A form of animation where a camera shoots pictures of a physical setup, one frame at a time. The film must then be developed and printed before the animation can be previewed. Contrast to computer animation .
file	Any document stored on a disk. VideoWorks and MacPaint files are examples of files. You make a file when you create a document, give it a name, and save it to disk; in this sense, file is synonymous with document.
font	In computer usage, the set of letters, numbers, punctuation marks, and other typographical symbols having the same typeface (such as Times, Helvetica, New York, Geneva). The size (10 pt, 12 pt) and style (bold, italic) can be changed readily.
foreground prioritization	A method of defining which piece of artwork is in front of other artwork on the Stage. VideoWorks uses channel numbers in the Score to determine this priority – ranging from channel 24 in the foreground to channel 1 in the background. See multiplane .
frame	One individual "snapshot" of the entire animation, as viewed on the Stage. A frame includes both the pictures and sound. A frame in the Score is represented by one column that spans across all 24 animation channels and the sound channel. One movie might be hundreds or thousands of frames in length. The frames are numbered across the top of the Score, starting at 1. Also see current frame .
frame cell	(Also called a cell.) One frame of a channel. The Score is composed of hundreds of cells, each one channel tall and one frame wide. Each cell is the snapshot of a single castmember for one moment in time.
Get Info	Get Info is the command to open up the dialog box associated with each document type (and transition) in Overview. Get Info on VIDEOWORKS II documents allows you to set timing, location and loop settings, with GLUE documents it allows to set which page displayed. Get Info on transitions opens up the transition window. With MacPaint or PICTs it allows you to set (or move with a hand tool) the location of the slide.
held artwork	(Also known as stationary artwork.) Artwork that stands still on the Stage as the movie is running. For example, background can be held. In a simple animation of a person talking, the face could be held while the lips are animated. In film animation, this is called <i>held cel</i> . Held artwork can be created easily with In-Between. See In-Between .
icon	A graphic image that represents an object, a concept, or a message. For example, a MacPaint is shown below.
	
import	To bring artwork or text into VideoWorks from another program. You can import using Art Grabber+, the Scrapbook, or the Clipboard.

In-Between	A feature of VIDEOWORKS II which simplifies the animator's task by filling in the frames between the beginning location and the end location of an animation sequence. In-Between is also used for extending held artwork, and sliding (and stretching) artwork between the points. This feature is available at the Edit menu. See held artwork .
Macintalk	A speech-generating program that allows the Macintosh to convert typewritten text to spoken English.
mask	An opaque image used to block the view in one area, but with holes that allow the image to be viewed in other areas. An example is a mask of a car with holes for the windows, which allows you to view the background through the windows.
matte	An ink that allows artwork to appear without the white box around it.
menu bar	The horizontal list of menu titles at the top of the screen (File, Edit, and so on).
mouse button	The button on the top of the mouse. You can click or double-click the mouse button for different actions.
movie	A VideoWorks animation, saved to the disk in its own file. In the illustration below, each icon represents a movie. The terms file, document, movie and animated slide show are loosely interchangeable.
multiplane	Traditional term for animation stand based technology. The channels in the VideoWorks Score can give you a 2 1/2D effect by enabling artwork to move in front of and behind other artwork. This effect is called a multiplane effect.
pixel	Short for picture element, a pixel is one dot of a screen image. On the Macintosh it is 1/72 of an inch square.
pointer	The arrow (or vertical bar or other shape) that moves around on the screen with the motion of the mouse.
Real-Time Recording	A method of computer animation used by VIDEOWORKS II in which the mouse movement is recorded to create an animation sequence. That recording automatically appears in the Score.
registration	The positioning of artwork to align it with other artwork. You can easily change the registration with the Registration Point in Paint.
scene	The action on Stage. You can clear the VideoWorks movie of all action with the command Burn Scene – which leaves the Cast unchanged.
Score	A VideoWorks window consisting of 24 animation channels plus one sound channel. The Score displays in one convenient place information about the <i>entire</i> movie, whereas the Stage displays only one frame at a time. The Score is a notational editor for animation, displaying the animation information left to right through time, somewhat like conventional music notation.
scroll bar	A narrow rectangular bar appears along the right or bottom of some windows. Clicking or dragging in the scroll bar or dragging the scroll box causes your view of the document to change.

scroll box	The white square box in a scroll bar. The position of the scroll box in the scroll bar indicates the position of your view in the window relative to the entire document.
select	To highlight an object so that you can move, cut, copy or paste it. For example, you can select a window (to make it active), select art on the Stage (to move), and select frames in the Score (to cut and paste).
select	To specify which item on the screen will be subject to the next command. The object then is highlighted by turning black, showing a flashing cursor, or outlined with a solid or dotted line. For example, you can select artwork on the Stage, a castmember in the Cast, or a channel in the Score. Once an object is selected, you can Copy, Cut, Paste or Clear. (Also see activate)
selection	The artwork, text or frame cells highlighted, to be affected by the next command.
sequence	A series of pictures. For example, a frog leaping, a person walking, a ball bouncing, or text scrolling across the screen. More formally, a sequence of art is any series of frames in one channel of the Score. When we use the term <i>sequence</i> , by itself, it means <i>sequence of art</i> .
Shift-click	To press and hold the Shift key and then click the mouse button. This technique allows you to extend or shorten a selection. You position the pointer at the end of what you want to select and Shift-click.
slide	Any still picture, such as MacPaint, MacDraw, Glue or single-frame VideoWorks document.
sprite	Any one piece of artwork at one point in time. Sprites are meant to be pieces of artwork that move. It is a term used by videogame programmers.
Stage	The background window where animation and artwork is displayed what appears here is determined by the current frame in VideoWorks or the correct slide in Overview.
switch	In VideoWorks, switch means to replace artwork on the Stage with a castmember from the Cast.
sync	See synchronization.
synchronization	The relative positioning of sound and pictures so that they are timed together.
take	Indicates the number of times a given has been recording made—for example, Take 1, Take 2, etc.
timer	A special icon in Overview that is used for setting the time of delay (in seconds) for slide columns. The timer can also control the length of time that a clip animation (or movie) is displayed.
title bar	The top part of a window that is highlighted when the window is active. It contains the name of the document or the name of the window.

transition

A special visual effect which occurs between two different frames (in VideoWorks) or columns (in Overview). There are a total of 24 different transitions included with VideoWorks. You can also control the **delay** or **chunk** size of the transition. See **chunk** and **delay**.

tweak

Tweak means to move a small distance. The tweak window lets you move artwork on Stage a distance and direction you specify (measured in pixels).

tween

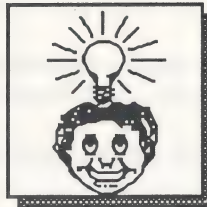
From the word "between." Filling in movements between frames A and B with art that changes shape (see also In-Between). VideoWorks cannot do true tweening.

vector

A quantity that has both distance and direction, usually represented by a straight line. The Tweak window contains a vector you specify to define distance and direction.

wipe

An effect whereby scene A is wiped off the screen by the progressive revealing of scene B.



Suggested Reading

If you wish to pursue your study of animation further, we recommend the following books:

General Information

The Animation Book, Kit Laybourne, New York, New York: Crown Publisher's Inc. 1979. A general reference on animation techniques, methods and history.

Microcomputer Displays, Graphics, and Animation, Bruce A. Artwick, Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1985, 1984 - A good technical primer on computer graphics and animation.

Computer Animation Primer, Fox, David and Waite, Mitchell. New York, NY: McGraw Hill, Inc., 1984.

Electronic Imaging Techniques, Levitan, Eli L. New York, NY: Van Nostrand Reinhold Company, 1977.

Technique

A former Disney animator presents basic animation techniques in these two how-to books.

Animation: How to Animate Film Cartoons, Preston Blair, Laguna Beach, CA: Walter T. Foster, 1980.

Animation: Learn How to Draw Animated Cartoons, Preston Blair, Tustin, California: Walter T. Foster, 1985.

In the late 1870s, Muybridge cataloged the movement of humans and animals in thousands of photographic sequences. The following two books are an invaluable reference source for animators.

Muybridge - Man in Motion, Haas, Robert Bartlett. Berkeley and Los Angeles, CA: University of California Press, 1976.

Muybridge's Complete Human and Animal Locomotion, New York, NY: Dover Publications, Inc., 1979.

Historical Animation Books

Disney Animation: The Illusion of Life, Frank Thomas and Ollie Johnson, New York: Abbeville Press Publishers, 1984. - An extensive survey of Disney animation. Written by two of the top Disney animators, this book describes the development of the Disney style of animation.

Treasures of Disney Animation Art, Walton Rawls Ed., New York: Abbeville Press Publishers, 1982. - A selection of classic Disney animation artwork.

The Art of Walt Disney, Finch, Christopher. New York, NY: Abradale Press, Harry N. Abrams, Inc., 1983.

Paper Movie Machines, Budd Wentz, San Francisco: Troubador Press, Inc., 1975. - A combination history and How-To book. It includes the plans for flip books and other non-camera animation devices.

Creators of Life – A History of Animation, Heraldson, Donald. New York, NY. Drake Publishers, Inc., 1975.

Magazines

Computer Graphics World, Littleton, Mass., PennWell Publishing Co.

Millimeter, Cleveland, Ohio, Penton/IPC, Inc. Publisher.

American Cinematographer

Cinefex

Computer Picture, New York, NY, Backstage Publications, Inc.

IEEE Computer Graphics and Applications, New York, NY, IEEE Computer Society

Verbum, San Diego, Ca, Donovan Gosney, Inc.

Whole Earth Software Catalog, Garden City, NY, Quantum Press/Doubleday

Technical Journals

SIGGRAPH proceedings 1975-1987, Computer Graphics, New York, NY, Association for Computing Machinery

Biographies

Marc Aaron Canter – MAC

Marc Canter is the president and co-founder of MacroMind. His background is in music, video, lasers, dance and theater. He is a graduate of Oberlin College and has published several articles on MacroMind's authoring systems. He is responsible for running around the country making sure that everyone knows about MacroMind and VIDEOWORKS II, and he gives one of the best demos you've ever seen. You can sum up Marc's position at MacroMind as "He does everything there is to be done, but program."

Marc's dreams are confined to making MacroMind strong and implementing its technology throughout the creativity business. Advertising, Entertainment and Training are the markets Marc has decided to focus on in the next few years. So if you're part of any of those industries, get ready, Marc's coming!

Erik Neumann

Erik is an engineer by temperament, a computer scientist and MBA by training, and a musician on the side. At Oberlin College he first came in contact with computers (falling in love with the elegance of the programming language APL) as well as electronic music. Since then he has worked as a mainframe programmer in various industries, finally turning to microcomputers when they became interesting enough (i.e., when the Macintosh was released). He knew Marc from the Oberlin electronic music days, and has worked on various MacroMind projects since joining the company in 1985. He can often be heard in clubs and galleries around Chicago playing electric fuzz cello.

Dan Sadowski

Within his electronic cottage in Oak Park, on the western reaches of Chicago, Dan develops graphic software on the Macintosh for MacroMind, Inc. He didn't always do this. In fact, before MacroMind existed, besides transporting yachts up and down the eastern seaboard from Canada to the Caribbean, or along the Erie Canal, Dan was busy acquiring his B.S. and M.S. degrees at the University of Illinois, Chicago Campus. Along the way, Dan married a fellow computer graphics addict, Patti Harrison, gave up the sea and has spent the last three years consulting in the computer graphics field. When not programming or bicycling, Dan and the little Ms. spend their time creating and maintaining the next generation of software engineers.

Alan McNeil

Alan has a love/hate relationship with computers. After many degrading experiences with IBM 1620 and IBM 360 consultant-priests, he decided that programming was not for him. After dipping into Architecture, Industrial Design, Film, Animation, Photography, and Video, he was running out of gadgets to master in the Art and Architecture building when CDC's PLATO, a great network game machine, came to campus. He was hooked. Then came the MITS Altair, the machine that started the micro revolution. Alan got one right away.

After spending a year running the first computer store in Illinois, he joined the video/pinball game industry hoping to make lovable home computers. His successes include the design and programming of Stern Electronics' classic arcade hits *Berzerk* and *Frenzy*, as well as work on Midway's *SeaWolf II*, *The Bally Arcade* and many Stern pinball games. When the Mac came out in 1984, Alan was again one of the first in line to buy one. As a private consultant he programmed the Mac version of *Epyx Winter Games*, *ODS Consultant*, *MazeWars+* and *GraphicWorks*.

Alan likes the Mac because it's a pinball game disguised as a computer and no blue suit is required to operate it.

Credits

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Programming: Erik Neumann, Dan Sadowski, Alan McNeil, Jay Fenton, Tom Ptak

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Guided Tour disk: Stuart Sharpe, Jon Petit

Sound: Stuart Sharpe, Marc Canter, David Theil

Clip animation: Stuart Sharpe, Jeff Lee, Roy Santiago, Darnell Williams, Jon Petit, Tommy Marcus

Artwork: Stuart Sharpe, Jeff Lee, Roy Santiago, Mark Pierce

Movies: Stuart Sharpe, Mark Pierce, Erik Neumann

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Package production: Roger Jones

Original manual (excerpts): Nicholas Lavroff

Click Art Effects™: Bill Parkhurst

Shift-Command-6 FKey: Joe Miller

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Look for other software products by MacroMind: Maze Wars+; Movies disks, including "The Mall"; other Clip Animation, sound and artwork disks; and scheduled for release in Nov. '87, the momma of all products—VideoWorks Interactive.

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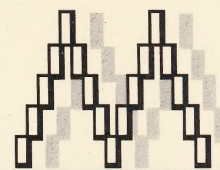
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