

SIM LIFE

LAB BOOK

Name: _____

Class: Yah. and plenty of it.

Grade: Steep enough for skateboarding!

Starting Date: Mom says not till I'm 35

Finishing Date: _____

SimLife Lab Book

featuring:

The sample experiment Splatt,

which accompanies the tutorial in the SimLife™ manual,

and

SimLife Data Sheets

Splatt

The Goal Of This Experiment

To observe evolution through natural selection.

The Approach

Make two identical animal species—the subject and control—and apply environmental pressure to the subject in a way to try to influence the gene pool on the following genes:

Roaming

Turning

Turn Type

Turn Angle

The Plan Of Attack

The steps we'll be taking in setting up the experiment will be:

1. Design and build the subject animal.
2. Duplicate and rename the subject as the control animal.
3. Design and build the world needed for the experiment.
4. Modify the climate for optimum control.
5. Change the laws of physics for optimum time passage and population limits.
6. Populate the world with the subject and control species.
7. Record the starting genetic data for both populations.
8. Apply the environmental pressure for a number of generations.
9. Observe the results at two points in time.
10. Analyze the results.



Preparation

Start SimLife in Experimental Mode.



Step 1: Design And Build The Subject Animal

Animal Design Criteria

The subject animal will be called _____

The design requirements for this animal aren't very demanding or critical in any way. It won't have any enemies to contend with, and it won't have to search or fight for food or water. All it needs to do is eat and reproduce and roam.

The Prototype Genome

The subject animal has the following prototype genome:

Gender

Food Sources

Movement

Behavior

Turn Type

Turn Angle

Species Genome for

Life

Food

Water

Health

Max

Action

Danger

Size

Stealth

Weapons

Vision

Gestation

Time

% Female

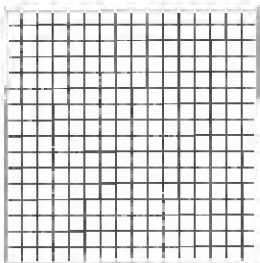
Mutation

Number of Children

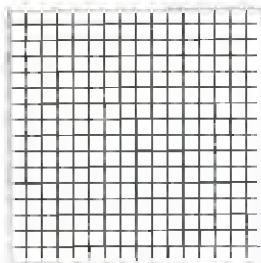
Never Mind **Make It So!**

The Icons

The subject animal will be represented in the Edit Window by the following icons:



adult

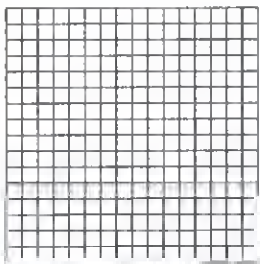


child

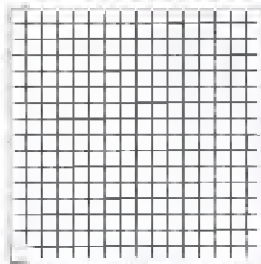
Step 2: Duplicate And Rename The Subject As The Control Animal

The control animal will be genetically identical to the subject and will be called _____

Its icons will look like:



adult



child

Step 3: Design And Build The World Needed For The Experiment

World Design Criteria

The world will be small, with no toxins, mutagens or barriers. There will be unlimited food and water, and enough room for the animals to move around and find mates.

Design Settings

The following settings will be used to generate the world:

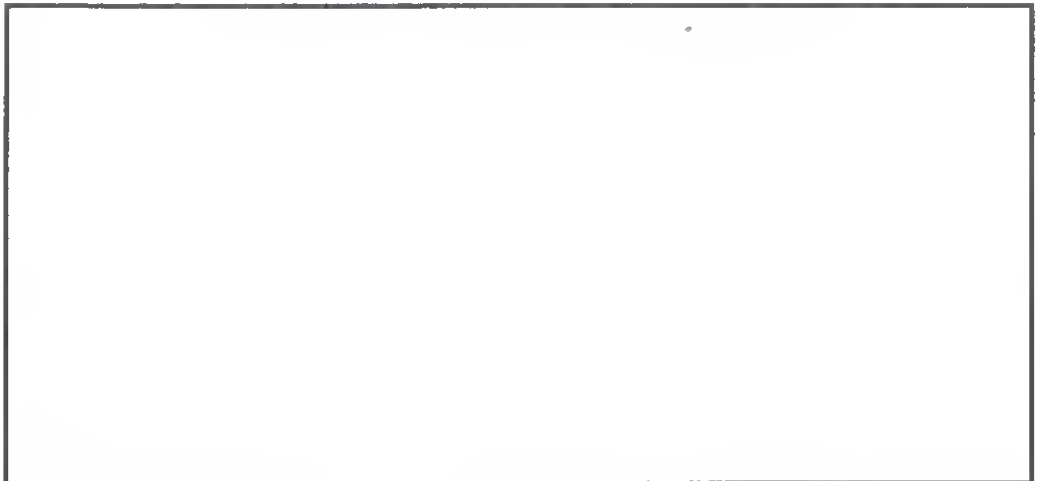


World Design

High Regional Weather Variation Low	Hot World Average Temp. Cold	Wet World Average Moisture Dry	None Many Toxins Mutagens Food Sources Barriers
Many Rivers and Lakes None	Many Mountains None	World Size: tiny small medium large	Never Mind Make It So
New World Name: 			

The Landscape

Here is the finished world layout showing land, water and food sources.



Color Key: ☐ Land ☐ Water ☐ Food Sources

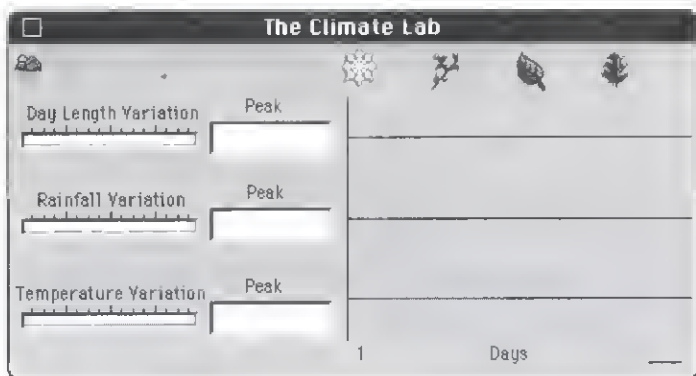
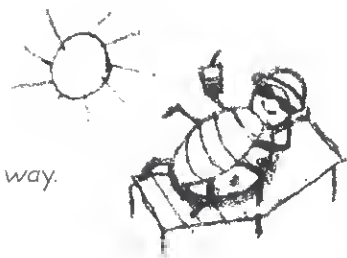
Step 4: Modify The Climate For Optimum Control

Climate Design Criteria

Nothing special, generally benign, won't affect the experiment in any way.

Climate Settings

The climate was set as shown below:



Step 5: Change The Laws Of Physics For Optimum Time Passage And Population Limits

Physics Design Criteria

Make life as easy as possible for our bugs, make time pass very quickly, limit life span, eliminate mutation and limit the total number of animals.

Physics Settings:



Movement Costs		Metabolism Costs		The Laws of Physics	
	Swim		Gestation	Simulation Stuff Life Span Day Length Year Length Plant Limit Mutation Rate Animal Limits	

Step 6: Populate The World With The Subject And Control Species

Preparation

Pause the simulation and set simulation time to 0.

Population Strategy

Populate the world with 15 Splatts and 15 Controls as designed, then modify the prototype genomes for both species for genetic diversity in our genes of interest, and then populate the world with 15 more Splatts and 15 more Controls.

Genome Modifications

Here are the modifications for Splatt and Control:

- Set Roaming to 75%
- Set Turning to 75%
- Change Turn Type to Random
- Change Turn Angle to Medium-high



Step 7: Record The Starting Genetic Data For Both Populations

Tick: 0 Day: 0 Year: 0

Splatt Population: _____

Turn Angle

	Low
	Med. Low
	Med. High
	High

Turn Type

	Looping
	Random
	Zig-Zag

Roaming v	
Turning v	

Control Population: _____

Turn Angle

	Low
	Med. Low
	Med. High
	High

Turn Type

	Looping
	Random
	Zig-Zag

Roaming v	
Turning v	

Step 8: Apply The Environmental Pressure For A Number Of Generations

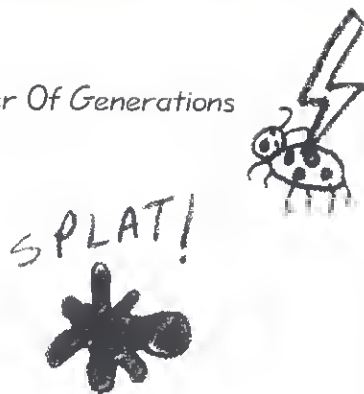
Procedure

Unpause the simulation, set the speed and let the smiting begin.

Smiting Philosophy

Try to only smite adult Splatts that hold still for a while or that go in a straight line for a while. Don't kill so many that the population gets too low.

Avoid smiting Controls.



Step 9: Take Data At Two Points In Time

Data Set 1

Tick: ____

Day: ____

Year: ____

Splott Population: ____

Turn Angle ▾

Low

Med. Low

Med. High

High

Turn Type ▾

Looping

Random

Zig-Zag

Roaming ▾

Turning ▾

Control Population: ____

Turn Angle ▾

Low

Med. Low

Med. High

High

Turn Type ▾

Looping

Random

Zig-Zag

Roaming ▾

Turning ▾

Data Set 2

Tick: ____

Day: ____

Year: ____

Splatt Population: ____

Turn Angle ▾

Low

Med. Low

Med. High

High

Turn Type ▾

Looping

Random

Zig-Zag

Roaming ▾

Turning ▾

Control Population: ____

Turn Angle ▾

Low

Med. Low

Med. High

High

Turn Type ▾

Looping

Random

Zig-Zag

Roaming ▾

Turning ▾

[illegible]

What Worked?

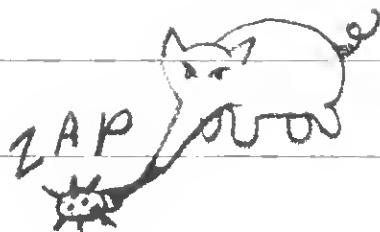
What Didn't Work, And Why?



Conclusions:

[illegible]

If I Did It All Over Again, I'd:



SimLife Data Sheets

These data sheets are provided to help you record data in your experiments. You may copy them for your own use, but don't stand around outside schoolyards in a trenchcoat selling them to innocent students.

Instructions

- Copy these data sheets as needed for your experiments and mark up the copies. Keep the originals in this Lab Book clean for future use.
- When there is a multiple choice button (such as World Size in the Build World Window), darken the active button.
- On Yes/No buttons (such as Food Sources in the Animal Genome Window), write in a "Y" or "N."
- Where a color key is provided (such as in the Map Window), fill in the little box with the color you are using and write what the color represents next to the little box.
- On slider bars, you can just draw in a dark vertical line to mark the setting, or get fancy and do the arrows and shaded bars.
- In the Variables Window, you may want to fill in the slider bars in the appropriate colors: green, yellow or red.
- When there is a blank in a Title Bar (such as in the Variables Windows), fill in the name of the species or organism.
- There isn't much space for pictures or icons in the Biology Labs, so you'll need to use fairly sharp colored pencils.
- Fill in multiple choice blanks (such as the Tiny/Huge/etc. choices in the Laws of Physics Window).
- In windows that only use icons to identify a species, room has been provided to write in the species name (so you won't have to use a magnifying glass to draw those tiny icons).
- In the Animal Genome Window, in the Behavior section, the Attracted To and Repelled By buttons are blank and the icons are numbered. Write in the + or - on the buttons as needed, then write the species name for each icon in the matching numbered blank.
- In the Gene Pool Window, be sure to fill in both the individual gene group name as well as the gene names. Don't forget the checkmarks on the left for the species prototype settings.
- In the Graphs Window, be sure to write in the numbers for the graph along the right side.
- In the Graphs Window, use the blank icon spaces to color-code the four graphs.

SimLife Data Sheet

Map Window

Name: _____

Page _____ of _____

Date Created: _____

Experiment Start Time:

Tick _____ Day _____ Year _____

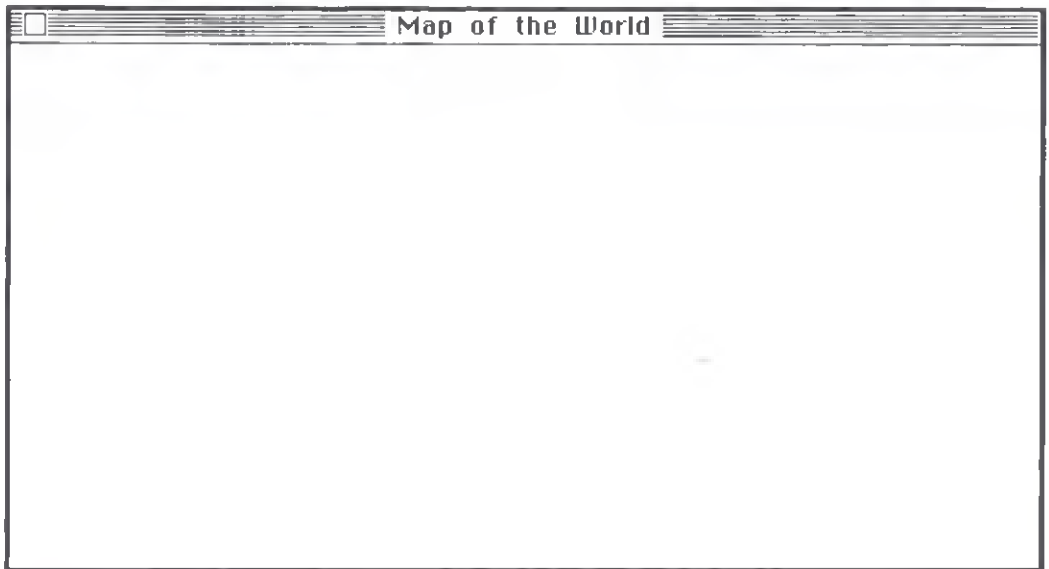
Experiment Name: _____

Data Taken:

Experiment Step: _____

Tick _____ Day _____ Year _____

World Name: _____



Color Key: ☐ _____ ☐ _____ ☐ _____ ☐ _____
☐ _____ ☐ _____ ☐ _____ ☐ _____

Comments: _____

SimLife Data Sheet

Variables Window – Plant

Name: _____

Page _____ of _____

Date Created: _____

Experiment Start Time:

Tick _____ Day _____ Year _____

Experiment Name: _____

Data Taken:

Experiment Step: _____

Tick _____ Day _____ Year _____

Health

Food

Water

Radiation

Height

Weight

Age

Comments: _____

SimLife Data Sheet

Variables Window – Animal

Name: _____

Page _____ of _____

Date Created: _____

Experiment Start Time:

Tick _____ Day _____ Year _____

Experiment Name: _____

Data Taken:

Experiment Step: _____

Tick _____ Day _____ Year _____

Health _____

Food _____

Water _____

Radiation _____

Height _____

Weight _____

Age _____

Forage Count _____

Gestation _____

Comments: _____

SimLife Data Sheet

Climate Lab

Name: _____

Page _____ of _____

Date Created: _____

Experiment Start Time:

Tick ____ Day ____ Year ____

Experiment Name: _____

Data Taken:

Experiment Step: _____

Tick ____ Day ____ Year ____

World Name: _____

☐

The Climate Lab







Day Length Variation

|

Peak

Rainfall Variation

|

Peak

Temperature Variation

|

Peak

1
Days

Comments: _____

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SimLife Data Sheet

Laws of Physics Window

Name: _____

Page _____ of _____

Date Created: _____

Experiment Start Time:

Tick ____ Day ____ Year ____

Experiment Name: _____

Data Taken:

Experiment Step: _____

Tick ____ Day ____ Year ____

World Name: _____

Movement Costs		Metabolism Costs		The Laws of Physics	
	Swim		Gestation	HELP	
	Walk		Growth		
	Climb		Healing		
	Fly				
Food Value		Health Costs		Simulation Stuff	
	Animals		Toxin		Life Span
	Plants		Plague		Day Length
	Filter		Old Age		Year Length
	Fruit		Crowding		Plant Limit
	Nectar		Battle		Mutation Rate
	Seeds				Animal Limits
		Plant Costs		Soil & Climate Change	
			Food	Low High	
			Water		
Set Defaults		Never Mind		Make It So	

Comments: _____

SimLife Data Sheet

World Design Window

Name: _____

Page _____ of _____

Date Created: _____

Experiment Start Time:

Tick _____ Day _____ Year _____

Experiment Name: _____

Data Taken:

Experiment Step: _____

Tick _____ Day _____ Year _____

World Design

Regional Weather Variation

High  Low

World Average Temp.

Hot  Cold

World Average Moisture

Wet  Dry

Rivers and Lakes

Many  None

Mountains

Many  None

World Size:

Toxins

None  Many 

Mutagens

Food Sources

Barriers

New World Name:

Comments: _____

SimLife Data Sheet

Bio Lab – Plants

Name: _____

Page _____ of _____

Date Created: _____

Experiment Start Time:

Tick ____ Day ____ Year ____

Experiment Name: _____

Data Taken:

Experiment Step: _____

Tick ____ Day ____ Year ____

☐

The Biology Lab

Name: _____

Rename

↑

↓

↑

↓

↑

↓

Gene Pool Diversity

Mating Difference

% Genes from Father

Seeds

Flowers

Leaves

No Leaves

Comments: _____

SimLife Data Sheet

Bio Lab – Animals

Name: _____

Page _____ of _____

Date Created: _____

Experiment Start Time:

Tick ____ Day ____ Year ____

Experiment Name: _____

Data Taken:

Experiment Step: _____

Tick ____ Day ____ Year ____

☐

The Biology Lab

Name :

Gene Pool

Diversity

Mating

Difference

% Genes from

Father

Adult

Child

Comments: _____

Page 22

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SimLife Data Sheet

Diversity Window – Plants

Name: _____

Page _____ of _____

Date Created: _____

Experiment Start Time: _____

Experiment Name: _____

Tick ____ Day ____ Year ____

Experiment Step: _____

Data Taken: _____

Tick ____ Day ____ Year ____

World Name: _____

☐
Diversity

2%

All Plants

All Animals

↑

↓

Help

Diversity Window	Tree	☐	☐	☐	☐	☐	☐	☐	☐	Population: ☐ 0 ☐ 1 ☐ 2 - 5 ☐ 6 - 10 ☐ 11 - 20 ☐ 21 - 40 ☐ 41 - 80 ☐ 80 & up
	Shrub	☐	☐	☐	☐	☐	☐	☐	☐	
	Grass	☐	☐	☐	☐	☐	☐	☐	☐	
	Water	☐	☐	☐	☐	☐	☐	☐	☐	
	Tree	☐	☐	☐	☐	☐	☐	☐	☐	
	Shrub	☐	☐	☐	☐	☐	☐	☐	☐	
	Grass	☐	☐	☐	☐	☐	☐	☐	☐	
	Water	☐	☐	☐	☐	☐	☐	☐	☐	
		Drifting	Dropping	Sticky	Fruit	Drifting	Dropping	Sticky	Fruit	
		Nectar				No Nectar				

Comments: _____

SimLife Data Sheet

Diversity Window – Animals

Name: _____

Page _____ of _____

Date Created: _____

Experiment Start Time:

Tick _____ Day _____ Year _____

Experiment Name: _____

Data Taken:

Experiment Step: _____

Tick _____ Day _____ Year _____

World Name: _____

All Plants

All Animals

↑

↓

Help

Eats Meat	☐	☐	☐	☐
Eats Fruit	☐	☐	☐	☐
Eats Nectar	☐	☐	☐	☐
Eats Seeds	☐	☐	☐	☐
Eats Plants	☐	☐	☐	☐
Filter Feeder	☐	☐	☐	☐

Swimming

Walking

Climbing

Flying

Population:

☐ 0

☐ 1

☐ 2 - 5

☐ 6 - 10

☐ 11 - 20

☐ 21 - 40

☐ 41 - 80

☐ 80 & up

Comments: _____

SimLife Data Sheet

Food Web Window – Main Links

Name: _____

Page _____ of _____

Date Created: _____

Experiment Start Time:

Tick _____ Day _____ Year _____

Experiment Name: _____

Data Taken:

Experiment Step: _____

Tick _____ Day _____ Year _____

World Name: _____

Predator Species Name

☐
Food Web
Help

Click on icons to navigate through the web

Species

Main Links
One Species

Predator	Prey

All Diets
Plant Eaters
Meat Eaters

Prey Species Name

Comments: _____

SimLife Data Sheet

Food Web Window – One Species

Name: _____

Page _____ of _____

Date Created: _____

Experiment Start Time:

Tick _____ Day _____ Year _____

Experiment Name: _____

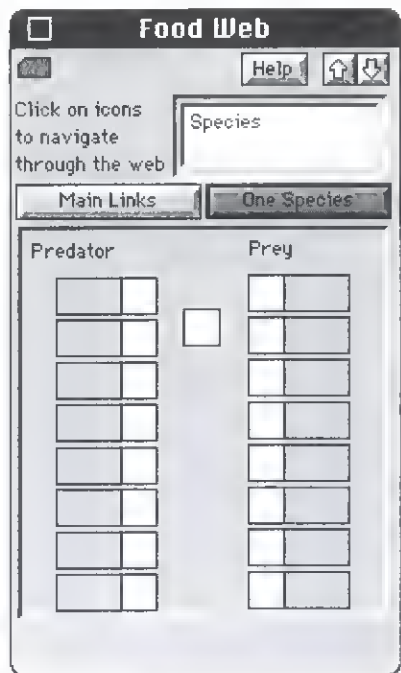
Data Taken:

Experiment Step: _____

Tick _____ Day _____ Year _____

World Name: _____

Predator Species Name



Prey Species Name

Comments: _____

SimLife Data Sheet

Gene Pool Window

Name: _____

Page _____ of _____

Date Created: _____

Experiment Start Time:

Experiment Name: _____

Tick ____ Day ____ Year ____

Experiment Step: _____

Data Taken:

Tick ____ Day ____ Year ____

☐
Gene Pool

Population

Use Colors?

Species ☐

☐		
☐		
☐		
☐		
☐		
☐		

Each slice represents a value for a gene's trait:

Low

Comments: _____

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SimLife Data Sheet

Genome Window – Plants

Name: _____

Page _____ of _____

Date Created: _____

Experiment Start Time:

Tick ____ Day ____ Year ____

Experiment Name: _____

Data Taken:

Experiment Step: _____

Tick ____ Day ____ Year ____

Species Genome for

Gender

Structure

Seeds

Sprout Season

Flower Season

Seed Season

Evaporation Rate

Sprout Moisture

Sprout Temperature

Nectar

Evergreen

Health

Food

Water

Mutation Rate

Maximum Size

Old Age

Never Mind

Make It So

Comments: _____

SimLife Data Sheet

Genome Window – Animals

Name: _____

Page _____ of _____

Date Created: _____

Experiment Start Time:

Tick ____ Day ____ Year ____

Experiment Name: _____

Data Taken:

Experiment Step: _____

Tick ____ Day ____ Year ____

Gender		Food Sources		Species Genome for									
Movement ☐ Walk ☐ Climb ☐ Swim ☐ Fly		☐ Nectar ☐ Plants ☐ Animals ☐ Fruit ☐ Filter ☐ Seeds		Life ☐ Life Span ☐ Adult ☐ Die-Off									
Behavior ☐ Share Food ☐ Roaming ☐ Turning ☐ Persist		Features ☐ Size ☐ Stealth ☐ Weapons ☐ Vision		Food ☐ Max ☐ Action ☐ Danger									
Turn Type ☐ Turn Angle		Gestation ☐ Size ☐ Time ☐ % Female ☐ Mutation ☐ Number of Children		Water ☐ Max ☐ Action ☐ Danger Health ☐ Max ☐ Action ☐ Danger ☐ Max Size ☐ Energy									
(+)Prefer (-)Avoid (0)Ignore <table border="1" style="width: 100%; text-align: center;"> <tr> <td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td> </tr> </table> → more important		8	7	6	5	4	3	2	1	Never Mind Make It So			
8	7	6	5	4	3	2	1						

1 _____ 3 _____ 5 _____ 7 _____

2 _____ 4 _____ 6 _____ 8 _____

Comments: _____

SimLife Data Sheet

Graphs Window

Name: _____

Page _____ of _____

Date Created: _____

Experiment Start Time:

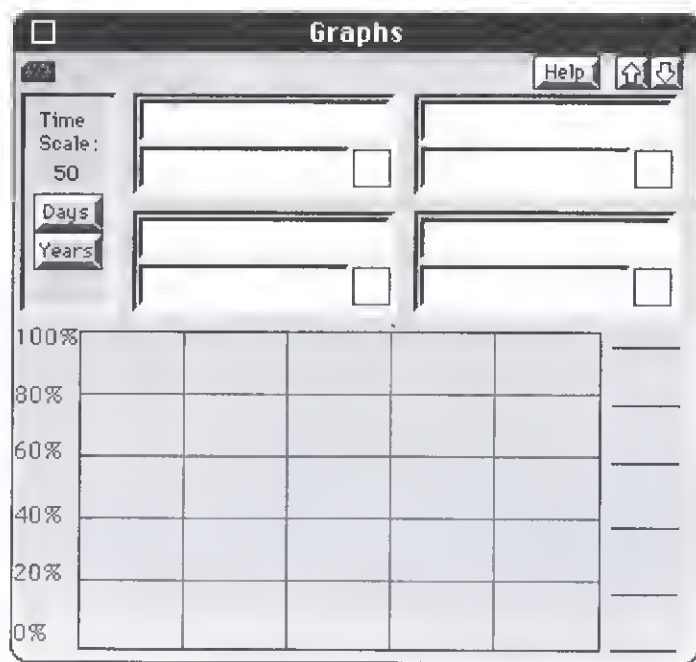
Tick _____ Day _____ Year _____

Experiment Name: _____

Data Taken:

Tick _____ Day _____ Year _____

Experiment Step: _____



Comments: _____

SimLife Data Sheet

Mortality Window

Name: _____

Page _____ of _____

Date Created: _____

Experiment Start Time:

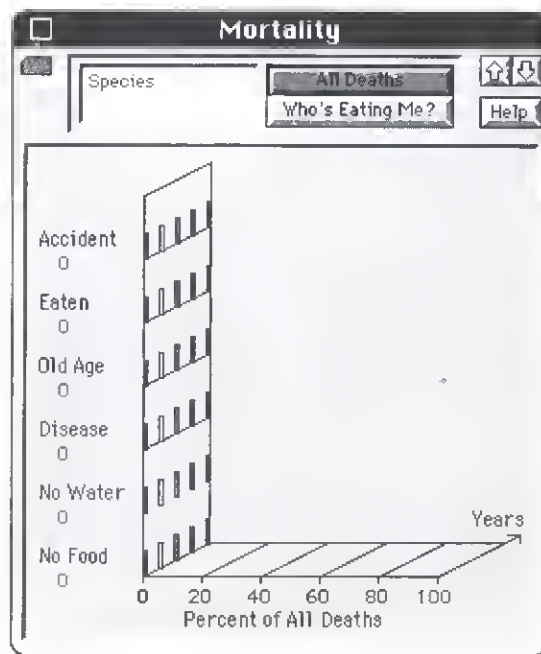
Tick ____ Day ____ Year ____

Experiment Name: _____

Data Taken:

Experiment Step: _____

Tick ____ Day ____ Year ____



Comments: _____

SimLife Data Sheet

Population Interaction Window

Name: _____

Page _____ of _____

Date Created: _____

Experiment Start Time:

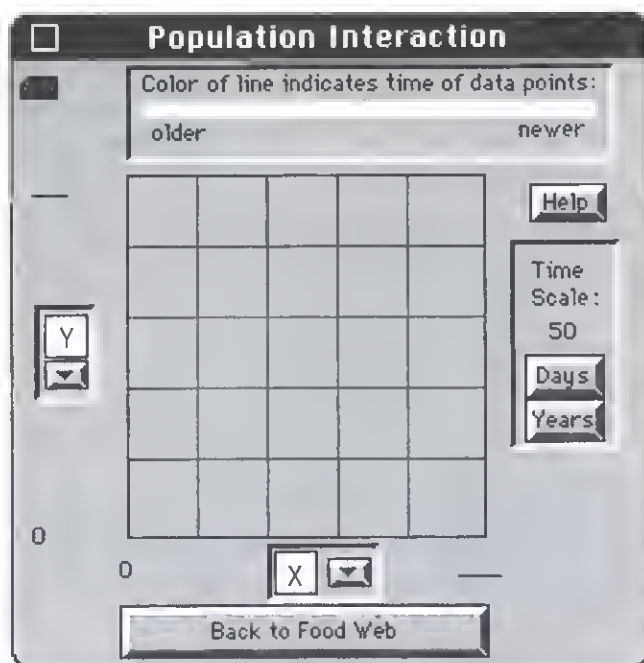
Tick _____ Day _____ Year _____

Experiment Name: _____

Data Taken:

Tick _____ Day _____ Year _____

Experiment Step: _____



Y _____ X _____

Comments: _____

The logo features the word "MAXIS" in a bold, white, sans-serif font. A white circular arc is positioned behind the letters "A", "X", and "I", partially enclosing them. The entire logo is set against a dark, textured background that resembles crumpled paper or a similar organic pattern.

MAXIS