



RECORD OF EXPERIMENTAL RESULTS

LABORATORY EXPERIMENTS With

LIFE3000

Using JOHN CONWAY'S GAME of Life
A Two DIMENSIONAL CELLULAR AUTOMATA
PROGRAMMED by DAVID R. BUNNELL

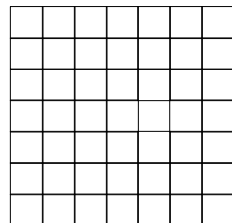
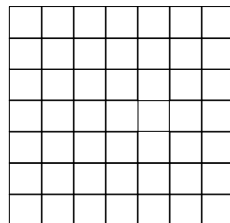
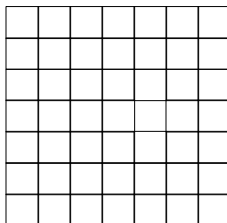
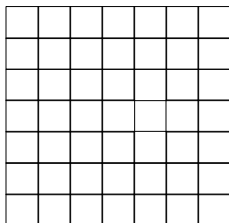
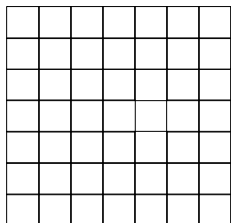
GENSCI 104 - ARTIFICIAL LIFE, CHAOS, AND COMPLEXITY
JAMES MADISON UNIVERSITY
LYNN S. FICHTER AND STEVEN J. BAEDKE

Experiment One - Life3000

Large Random Arrays of Live Cells

	Run 1	Run 2	Run 3	Run 4	Run 5
Final Population Size					
Stable, Extinct, Repeating?					
Number of Generations?					

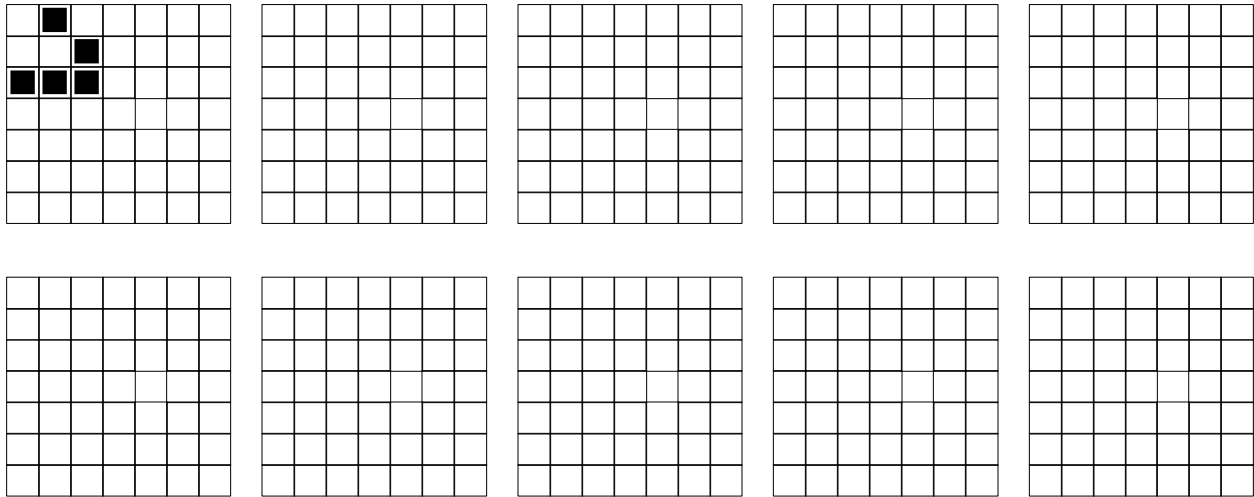
Sketch some typical end member patterns.



Describe what you observe happening in these experiments.

Experiment Two - Life3000

A Very Simple Array of Live Cells



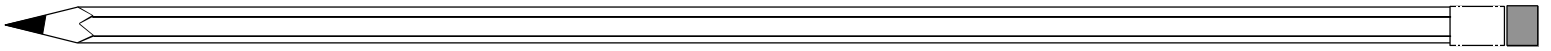
Describe what is happening in this experiment.

Experiment Three - Life3000

Variations On A Simple Array

Describe the outcome of the experiment.

Birth = _____; Survival = _____



Describe the outcome of the experiment by Generation ____.

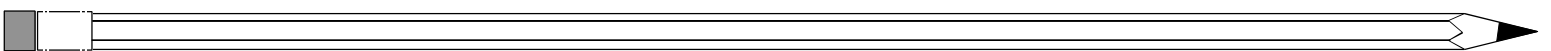
Birth = _____; Survival = _____

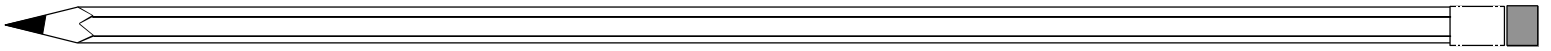
Describe the outcome of the experiment by Generation ____.

Birth = _____; Survival = _____

Describe the outcome of the experiment by Generation ____.

Birth = _____; Survival = _____





Describe the outcome of the experiment by Generation ____.

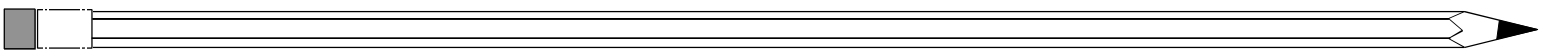
Birth = ____; Survival = ____

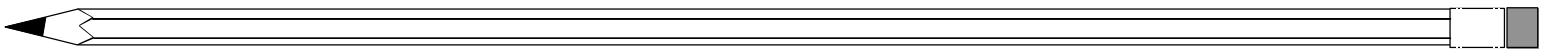
[Empty box for notes]

With the next two runs we are going to hold the Birth Neighbors Constant And Systematically Change the Survival Neighbors

Describe the outcome of the experiment by Generation ____.

Birth = ____; Survival = ____





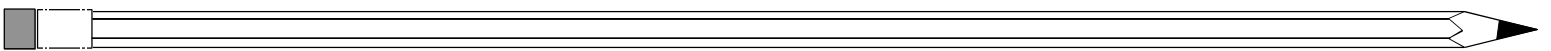
Describe the outcome of the experiment by Generation _____.

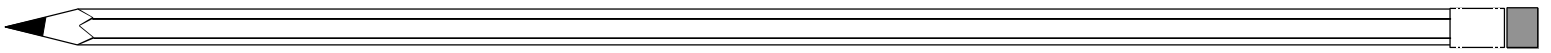
Compare Run 10 with Run 9.

Now we are going to vary both Birth and Survival
Neighbors in Various Ways

Describe the outcome of the experiment by Generation _____.

Compare Run 11 with Run 9 and 10.



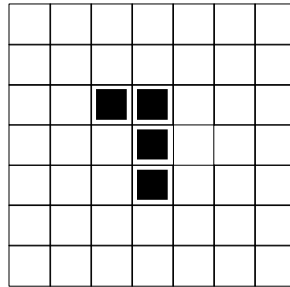


Describe the outcome of the experiment by Generation ____.

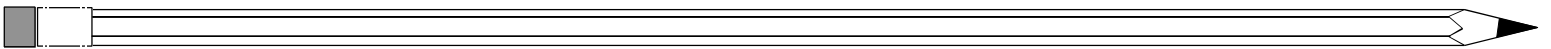
Compare Run 12 with Run 9, 10, and 11.

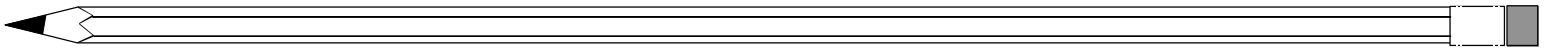
Change the Initial Pattern

For the last two experiments we want you to slightly change the initial pattern to that shown below but use same birth and survival neighbors as Run 12.



Large empty rectangular box for student response.





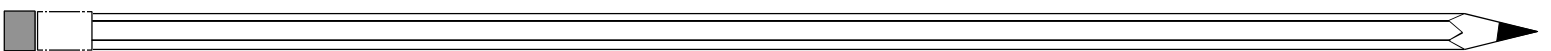
There is nothing to record for this program. Just follow the *Try This* suggestions in the Instruction pages.



DEMONSTRATIONS

If you have finished early, and are waiting for the class discussion, you are free to explore some of the other things Life3000 can do. Use your imagination. Be creative. Try some crazy ideas. The computer certainly does not care if it works or not. So, go ahead give it a try.

But also check out **14. Alife DEMONSTRATIONS:** in the instructions.



What Does It All Mean? (Class Discussion)

When everyone is finished we want to briefly discuss as a class what you have observed and what it all might mean.

For Life3000

- ☞ What have you observed?
- ☞ What is happening? Why did Life3000 behave this way?
- ☞ What meaning do you think it has, if any?
- ☞ Are there any practical applications to this stuff?

For MatFas Boids

- ☞ ACCEPT OR REJECT: The boids are behaving in ways similar to the Cellular Automata.

☺ F ☺ i ☺ n ☺ i ☺ s ☺

