Activity 3 Worksheet
Modeling a Simple Food Chain

Materials:

- A computer with internet access

Instructions:

1. Navigate to http://www.shodor.org/interactivate/activities/RabbitsAndWolves/
2. Observe the simulation screen, zoom in if it is too small to see well
3. Identify what icons indicate wolves, rabbits, and grass
4. Click the button labeled "View Population Graph" to bring up a graph of the number of wolves and rabbits at each time point, as well as the percentage of grass at each time point.
5. Click the button labeled "Start Simulation" to begin the simulation of this food chain.
6. After the simulation reaches an equilibrium, or after 500 iterations, click the "Pause Simulation" button.
7. Record the results of your simulation in the questions below.
8. Click the button labeled "View/Modify Parameters", then click the button labeled "View/Modify Start-Up Parameters" in the box that appears.
9. Modify the amount of starting grass, rabbits or wolves.
10. Predict what effect this will have on the simulated ecosystem.
11. Click the "Return to Simulator" button.
12. Click the "Reset Simulation" button.
13. Click the "Start Simulation" button.
14. Observe the population graph for your modified starting numbers and answer the questions below.
15. Try to find starting parameters that lead to a stable equilibrium population of rabbits and wolves.
16. If you find starting parameters that lead to a stable equilibrium, try running the simulation again with those parameters.

Questions:

1 Did the simulated ecosystem reach equilibrium using the initial settings?

_____

2 What happened to the number of rabbits as the simulation progressed?

_____

3 What starting parameter did you change? _____

4 How do you think this change will affect the simulation?

_____

5 How did the simulation results change between the initial parameters and your changed parameters? _____

_____

6 Did this match your prediction? _____

7 Were you able to find a set of starting parameters that led to stable equilibrium populations of wolves and rabbits? If so, what were those starting parameters? _____

_____

8 Was this equilibrium robust? I.e. if you run the simulation again with the same starting parameters do you reach the same equilibrium? _____