**Predator-Prey Simulation Lab**

Name:

Date:

Hour:

**Round 1 Data Analysis:**

**Data Table (record your data below)**

|  |  |  |  |  |  |
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| **Generation** | **# Lynx** | **# Hares** | **Hares Caught (Eaten)** | **Lynx Starved** | **Lynx Offspring** |
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**\*Create and attach Graph**

**Round 1 Evaluation**

**Round 2 Lab Write-Up**

**Hypothesis:**

**Procedure:**

**Data:**

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| **Generation** | **# Lynx** | **# Hares** | **Hares Caught (Eaten)** | **Lynx Starved** | **Lynx Offspring** |
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**\*Create and attach Graph**

**Round 2 Conclusion(s):**

**“ROUND 1”**

**Purpose:** Students will explore the link between predator and prey in a community,

and understand how the relationship affects both populations.

**Initial Procedure:**

1. Use the data table on the student worksheet to record all data

2. Each generation starts with a lynx “hunting” in the meadow to capture hares.

3. Click “Next Generation” to produce the next generation of lynx & hares.

4. Record 25 generations worth of data on the chart.

Simulation at: <http://www.eduweb.com/portfolio/studyworks/predators8a.html>

**Round 1 Data Analysis:**

❑ Produce a “finished product” graph of the data from the simulation.

❑ Graph the population number (hares & lynx surviving) vs. generation for

both species on the same graph. Make sure to put your responding variable on

the y-axis.

❑ Use different colors and/or symbols for the two species.

**Round 1 Evaluation:**

❑ Describe the pattern of population change, being sure to refer to actual/numerical data in your description.

❑ Project what might happen if other disturbances (perhaps abiotic) took place. What might change about the population pattern? Give at least two concrete details for your answer.

❑ Project what might happen if the wolf were exterminated by humans. What kinds of things might then impact the hare population pattern?

❑ Analyze the strengths and weaknesses of this simulation, including the built-in assumptions or “rules.”

❑ What changes would you make to make the simulation “better” or more realistic compared to what might actually happen in nature?

**“ROUND 2”**

**New Simulation**

Goal: Each team will modify/”improve” the “rules” of the simulation. This will be done to test a new hypothesis of your creation.

You can change:

1. The number of hares a lynx must catch to survive & reproduce.

2. The maximum number of babies a lynx can have.

3. The maximum number of hares each lynx can catch.

4. The survival rate of hares when population reaches the limit of the food supply.

Directions:

You will run the simulation under your new “rules,” and capture data as you did in Round 1. You will also create a line-graph of this data.

**Round 2 Lab Write Up**

**Round 2 Hypothesis:**

1. A hypothesis that reflects the change you are making to the simulation (for Round 2). Remember, this must be in “if = MV, then = RV, because…” format.

**Round 2 Procedure:**

2. A detailed written procedure describing how to run the scenario with your change clearly explained (for *Round 2*). As always, make sure that a “novice” could successfully execute the simulation.

**Round 2 Conclusions:**

3. A thorough data analysis including the results of both “rounds” (1 & 2) of the simulation.

4. A conclusion that addresses all the typical items in the Lab Checklist. Be sure to include:

1. The outcome of testing your hypothesis.

2. The supporting data (don’t forget the numbers!).

3. Any errors or uncertainties that arose in the “second round.”

4. Your next experimental hypothesis. This should be a new change to the

simulation, not just how you would fix your errors/uncertainties