SNC1W / VIRTUAL LAB 01

Ecosystem Food Webs & Energy Flow

Student name: _____ Class: _____ Date: _____

Time: 45–60 minutes | **Materials:** computer, virtual lab, this assignment

Open the lab: WorksheetGalaxy virtual food-web laboratory (once deployed). Your teacher may provide a local HTML copy.

A. Purpose and pre-lab

Investigate how a disturbance affects populations in a meadow food web. All species begin at a relative population index of 100; these values are not animal counts.

1. Identify one producer, two primary consumers and one secondary consumer from the simulator.

2. Write two food chains from the diagram. Explain what the arrows represent.

3. Hypothesis: Choose drought, rabbit disease, fox decline or pesticide. Predict changes in at least three populations and explain why.

4. Identify the independent variable, dependent variable and two controlled variables.

B. Experimental procedure

1. Open Experiment. Click each organism to review its ecological role.

2. Set No disturbance (baseline), strength 40%, duration 12 time steps. Click Run simulation. Record all seven final indices. Baseline strength has no effect.

3. Choose your disturbance. Set strength 20%, duration 12 steps. Run and record.

4. Repeat the same disturbance at 50% and 80% strength. Keep duration at 12 steps. Each run starts at index 100.

5. Open Data & Graphs. Use the trial table to check your results. Select a species and compare final population by trial. Export CSV if requested.

C. Observations and results

Disturbance selected: _____

Record final relative population indices to one decimal place.

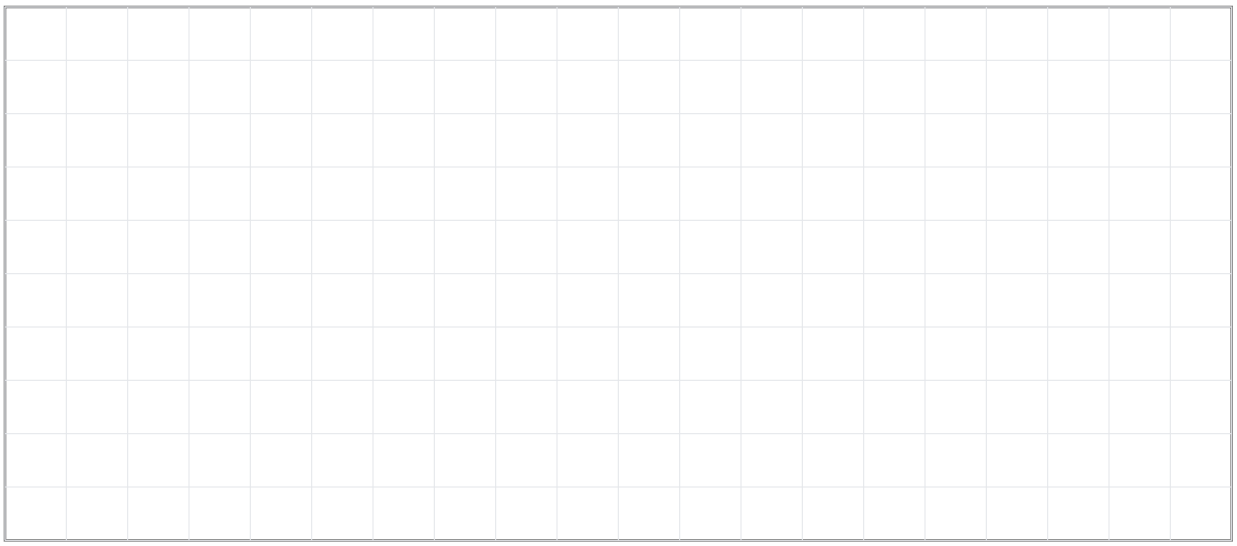
Trial	Strength	Steps	Grass	Rabbit	Mouse	G.hopper	Frog	Fox	Hawk
1	Baseline	12							
2	20%	12							
3	50%	12							
4	80%	12							

Qualitative observations: Which populations increased, decreased or stayed close to 100? Note any unexpected pattern.

Calculate the change from baseline for two species in trial 4 (final index minus baseline index). Show your work.

D. Graph and analysis

Draw a line graph showing final population index versus disturbance strength (0% baseline, 20%, 50%, 80%) for two species. Include a title, labelled axes, suitable scale and legend.



1. Describe the trend for each graphed species using numerical evidence.

2. Explain one direct effect and one indirect effect using feeding relationships.

3. Why does a change in producer or prey availability affect consumers? Distinguish energy flow from nutrient cycling.

E. Lab report and conclusion

Use your observations to write a concise scientific report. Attach additional pages if needed.

Results summary: Compare baseline and disturbed trials using at least three numerical values.

Evaluation: Identify two limitations of the fictional model and propose one improvement.

Conclusion: Answer the inquiry question, state whether your hypothesis was supported, and justify your answer with evidence.

F. Assessment and submission

Category	Evidence	Marks
Knowledge	Food-web roles and energy flow	/10
Thinking	Hypothesis, controls, data and analysis	/12
Communication	Graph, units and organized report	/8
Application	Ecological explanation and model evaluation	/10

Total: /40 Submit this completed assignment and graph; attach CSV if requested.