Sustainable Ecosystems & Human Impacts

SNC1W | Student laboratory assignment | 1 of 4

Prepare for your investigation

Name: _____ Date: _____ Class: _____

Research question

How do human pressures and conservation actions influence the simulated condition of a local ecosystem?

Learning goal: use the virtual model to gather evidence, explain sustainable ecosystems & human impacts and communicate a supported conclusion.

Materials: WorksheetGalaxy virtual laboratory, this assignment, calculator or spreadsheet if needed. Virtual observations only; do not recreate hazardous procedures or perform physical fitness tests without teacher approval.

1. Define two relevant scientific terms from the Background Information tab. (K/U)

2. Write a prediction or hypothesis with a scientific reason. (K/U, T/I)

3. Identify the variable or feature compared, the measured outcome and constants or consistent observation criteria. (T/I)

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Perform the virtual laboratory

Open the corresponding virtual lab and read Background Information. Follow the investigation instructions below. Record authentic simulated results; do not invent data.

- Write a testable hypothesis about one pressure (habitat loss, pollution or invasive species).
- Run a baseline with all pressures set to 20 and no conservation interventions.
- Change one pressure at a time while holding other variables constant; record at least four trials.
- Test at least two conservation strategies using the same starting pressures.
- Compare biodiversity and resilience results; identify one trade-off or limitation.
- Complete the lab report and submit the printed PDF or saved report as instructed by your teacher.
- Variables: independent = selected pressure or conservation intervention; dependent = simulated ecosystem indices; controlled = other slider values and time horizon.

Record each completed observation using the simulator’s record control when available. Use Data & Graphs to review results. Export CSV if available; attach additional rows or screenshots when needed.

Record the exact settings and any changes to the method.

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Observations & results

Enter the actual results. Keep trial IDs consistent between continued tables. Attach the full exported data or extra sheets when the procedure requires more rows. Include units as displayed.

Data table 1

Trial / item	Ecosystem	Years	Habitat loss	Pollution	Invasive

Data table 1 — continued (2)

Trial / item	Restoration	Cleanup	Control	Biodiversity	Resilience

Qualitative observations / sample calculation (show units where applicable)

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Analysis, conclusion & assessment

4. Present a labelled graph of a measured relationship, or an annotated diagram / comparison chart for qualitative investigations. Attach it separately. Explain the pattern using recorded evidence. (C, T/I)

5. Identify the independent, dependent and controlled variables. (K/U, A)

6. Describe your baseline conditions and observations. (K/U, A)

7. Explain the effect of increasing one human pressure using your data. (K/U, A)

8. Compare two conservation strategies with numerical evidence. (K/U, A)

Conclusion and evaluation: answer the research question, revisit the prediction using evidence, identify a model limitation and propose an improvement. (T/I, A)

Submit this assignment plus your completed Lab Report (printed or saved as PDF from the lab) and any supporting data/figures.

K/U: accurate concepts /10	T/I: method, data, reasoning /12	C: clear tables, units, report /8	A: explanation, conclusion, transfer /10

Total: /40