



# Ecosystems Inquiry Lab Write-up

Use the Science text book and your notes, observations & research to complete this assignment.

## The write up will include:

- Detailed qualitative observations
- Measured data, charts, tables and graphs
- Drawings, diagrams and pictures
- Complete answers to questions with details and elaboration

## Section 1: PURPOSE

- Problem, hypothesis, question or phenomenon
- A description of what the purpose of doing the lab is. What is being tested? What does the lab try and show, prove or help understand?

## Section 2: MATERIALS

- A detailed list of everything that is needed to carry out the inquiry so that another scientist can reproduce the experiment in exactly the same way.

## Section 3: PROCEDURE

A detailed step by step description of how you constructed the ecosystem.

- How did you build your ecosystem?
- What did you include? Why?
- Why were these elements necessary to include in the ecosystem?
- Which organisms were producers, consumers, detritivores, decomposers? (*make a chart*)
- How did you set up to get ready to observe your ecosystem? (*data sheet*)
- What do you need to do once the set-up is complete?

## **\*\*Diagrams and Pictures are an important part of sections 2 and 3 \*\***

- They should have captions, must be done carefully and must be labeled accurately to further clarify how the experiment was set up and carried out

## Section 4: DATA AND OBSERVATION

**\*\*\*This section includes 3 charts and 3 graphs\*\*\***

- The charts have 3-4 specific examples
- The graph must show change over time:
  - Graph examples:
    - Water and plant growth
    - Organism weight
    - Snail weight


**Chart & Graph 1: Roles and Relationships**

- Identify the roles (niches), relationships and interactions of at least 4 organisms in the ecosystem.

Example:

<b>Roles and Relationships</b>			
Organism	Niche	Relationship to Abiotic elements	Data
1. Plant	To produce oxygen and provide shelter for organisms	- Soil provides stability to plant -Uses the sun and water to make its own food	-we added soil and water and made sure the plant was by the window
2.			
3.			
4.			

Graph:



Graph Analysis and Explanation:

*Detailed explanation/interpretation of what the graph shows goes here*

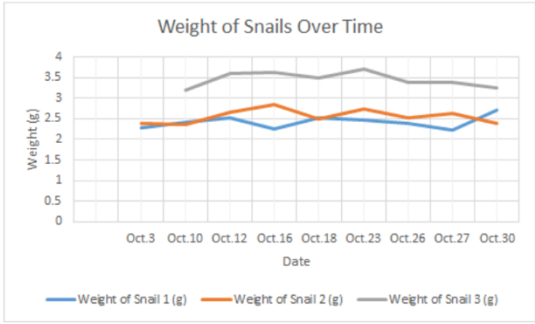
**Chart & Graph 2: Changes and Contributing Factors**

- Describe 4 or more changes (2 you made and 2 that happened on their own) you observed in the ecosystem.
- To the best of your ability, explain why they happened and whether it beneficial or detrimental to the overall health of the

Example.

<b>Changes and Contributing Factors</b>		
Additions/ removals/ Change / Observation	Reason	Impact of change
1. On November 3 <sup>rd</sup> we planted more grass	Most of the grass had dies and we felt the organism needed more producers for oxygen and shelter	-the grass started to grow - the snails spent more time in the grass area
2.		
3.		
4.		

Graph:



Graph Analysis and Explanation:

### Chart & Graph 3: Evidence of Energy Transfer

- Describe how energy was transferred through your ecosystem. *(include at least 3 several specific examples with explanations and supporting data)*

Example.

Energy Transfer											
Evidence (data)	Explanation										
1.											
2.											
3.											
Graph:											
<table border="1"> <caption>Food Weight Data</caption> <thead> <tr> <th>Date</th> <th>Food Weight</th> </tr> </thead> <tbody> <tr> <td>Oct 7</td> <td>3.3</td> </tr> <tr> <td>Oct 11</td> <td>3.2</td> </tr> <tr> <td>Oct 13</td> <td>2.178</td> </tr> <tr> <td>Oct 17</td> <td>0</td> </tr> </tbody> </table>		Date	Food Weight	Oct 7	3.3	Oct 11	3.2	Oct 13	2.178	Oct 17	0
Date	Food Weight										
Oct 7	3.3										
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Graph Analysis and Explanation:											

### **(Bonus) Chart 4: Carbon and Water Cycle**

- Describe the water and carbon cycles that occurred in your group’s ecosystem. *(include several specific examples with supporting data)*
- Make a chart and graph any way you chose

### Section 5: CONCLUSIONS

Answer the following questions to describe show your final observations and the conclusions you have reached after analyzing the contents of your ecosystem.

- What makes a good ecosystem?
- Would you consider your ecosystem a good ecosystem for the organisms in it? Did it meet the needs of all organisms? Explain in detail using data collected to support you opinion.
- How did you affect the ecosystem? Were your actions helpful or hurtful to the ecosystem overall? Explain.
- Do you think your ecosystem was better for your organisms or worse for them than their natural environment? **Include at least 3 examples with explanations.**

**Section 6: SOURCES OF ERROR & IMPROVEMENT**

Describe at least 5 *sources of error & improvement* - this is an analysis of what may have caused the results to be different or inaccurate

- Make a chart to organize you thinking
- How could the experiment be changed or modified in order to make it better? Include 3 or more hypothesis statements with an explanation (Use **hypothesis statements: If....then...**)

Sources of Error	
Source of Error	Explanation
1.	
2.	
3.	
4.	
5.	
Improvements	
Hypothesis Statement	Explanation

**Questions:**

*Use examples to help you answer and explain the following questions. Answer in complete detailed paragraphs.*

1. Use an organism in your ecosystems to show your understanding of natural selection and evolution. Consider the following questions to help you:
  - A. How do adaptations influence natural selection?
  - B. Why do some animals have better chance of survival?
  - C. Why do animals change over millions of years?
2. How does natural selection and the fact that there are so many different ecosystems in the world help explain the diversity of life on earth?
3. Do you think ecosystems are fragile, stable, or adaptable? **Why?**
4. What can happen when a new population is introduced into an ecosystem?
5. Why can organisms in an ecosystem share the same habitat but not the same niche?
6. How can humans effect ecosystems? Provide at least two positive effects and two negative effects and explain.

**Extras**

*Do some research to formulate your own opinion, then answer the following:*

1. Why should we be concerned with biodiversity vs monoculture?
2. Why is it important to preserve natural ecosystems around the world?
3. What are the competing forces that are endangering tropical rain forests?