

# Building an Ecosystem in a Jar

## Summary

In this lab students must design a working, closed, aquatic ecosystem. They will demonstrate their understanding of food webs, energy flow and matter cycles.

## Main Core Tie

Science - Biology

[Standard 1 Objective 2](#)

## Time Frame

3 class periods of 60 minutes each

## Group Size

Small Groups

## Materials

- [student sheet](#)  
(attached)  
large pickle jars  
UV lights
- *Pond Water Tour water test tabs*  
(LaMonte, found in most catalogs), students provide everything else!

## Background for Teachers

### Time Needed:

1 period planning, 1 period set up, 15 minutes every other day for several weeks, 1 period to answer analysis questions, ½ period results discussion

## Student Prior Knowledge

Students should understand the requirements for living things and a functioning ecosystem.

## Instructional Procedures

In this lab please remind students they will be working with live organisms. They should respect all life. Therefore it is critical students thoroughly understand how to create a working ecosystem.

Assign students in groups of 3-4.

Give them at least 1 class period to design their ecosystems.

They should then have a few days to collect supplies

Ecosystems should be sealed when the class is ready to begin

Provide a full day for set up

15 minutes should be provided 4 days a week for 2 weeks for observations

Be sure to encourage students to make detailed observations

Give the students a class period to work on graphs and analysis questions

Spend a ½ period with students presenting results of their labs

## Sample questions:

Describe the functioning food web you began with in your jar.

How did that food web change over time?  
Explain how the matter cycles functioned in your ecosystem?

Assessment Plan

Scoring Guide:

Prelab (through hypothesis) is complete.....30 points  
Lab design in adequate and well thought through.....15 points  
Observations and detailed and sensible.....40 points  
Graphs clear and correctly plotted.....15 points  
Analysis Questions answered correctly.....22 points  
Conclusions well written with concrete ideas.....15 points

Bibliography

Lesson Design by Jordan School District Teachers and Staff.

Authors

[Utah LessonPlans](#)