Lesson: Activity 74: Observing Organisms

Teacher:	Kaylan Duthie
Unit Theme/Course:	Sepup Ecology
Date:	Feb 15th & 16th
Timing:	2 class periods

Challenge Question:

What can you discover about an organism in a laboratory investigation?

Overview:

Students will begin to learn about ecology and the study of relationships between living things and the physical environment. They will study blackworm in a laboratory observation/investigation, and make observations and inferences about their behaviors and causes of those behaviors. Students will also learn about the differences between an observation and an inference.

Learning Objectives [cognitive, academic, language, socio-cultural]	Assessment Criteria
Students use appropriate tools and techniques to gather, analyze, and interpret data	Students develop appropriate guidelines for handling live animals. Students use a petri dish, pipet, and paint brush to gather observational data
Behavior is one kind of response an organism can make to an internal or environmental stimulus	Students gather data about how the blackworm responds to being touched and placed on a different surface.
Scientists formulate and test their explanations of nature using observation	After making observations, students infer what type of environment they think a blackworm would live in

Standard/EALR:

6-8 INQA Question	Scientific *inquiry* involves asking and answering *questions* and comparing the answer with what scientists already know about the world.	*Generate* a *question* that can be answered through scientific *investigation*. This may involve refining or refocusing a broad and ill-defined *question*.
6-8 INQB Investigate	Different kinds of *questions* suggest different kinds of scientific *investigations*.	Plan and conduct a scientific *investigation* (e.g., *field study*, systematic *observation*, *controlled experiment*, *model*, or simulation) that is appropriate for the *question* being asked.
6-8 INQC Investigate	Collecting, analyzing, and displaying data are essential aspects of all *investigations*.	*Communicate* results using pictures, tables, charts, diagrams, graphic displays, and text that are clear, accurate, and informative. *a

6-8 INQF Explain	It is important to distinguish between the results of a particular *investigation* and general conclusions drawn from these results.	*Generate* a scientific conclusion from an *investigation* using inferential logic, and clearly distinguish between results (e.g., *evidence*) and conclusions (e.g., explanation). *Describe* the differences between an objective summary of the findings and an *inference* made from the findings.*

Preparation Time:

30 minutes to gather materials

Must order worms a few weeks ahead of time and grow the culture. Save worms for activity later on.

Materials:

- Bin, fish food, non-bleached paper towels, worms
- For each pair of students
    - Petri dish
    - Filter paper
    - Pipet
    - Small paintbrush
    - Hand-lens
    - Microscope
    - slide

Instructional Sequence:

Day 1

1. Set up notebook paper with Entry title
2. Have student read aloud the introductory paragraph
    a. Ask students for a definition of organism
    b. How many of you have every studied an organism?
    c. In science class? Out of science class?
3. Have a student read the challenge question
    a. Write it down on their journal entry
4. Have students follow step one of the procedure
    a. Working in pairs, write brainstorm and write down guidelines for studying animals in the classroom
    b. Have students share ideas out loud with the class
5. Talk a little bit about the blackworms
    a. Reproduce asexually
    b. Need to be careful, but if they segment, don't freak out…let me know so I can put them away and give them some space to regenerate.
6. Go over observation vs. inference

    a. Ask students if anyone can explain the difference between an observation and in inference
    b. Go over the three statements
        i. Have students hold up sign for guess of whether inference or observation
        ii. After saying that they're an inference, ask students if they can come up with an observation that would lead them to that particular inference (see flipchart)
7. Have students go to lab groups
    a. Create T-char on piece of paper w/ observation on one side and inference on the other
    b. Have student complete procedure steps 1-10, or as far as they can get.

Day 2

1. Vocabulary
    a. Ecology – The study of how living organisms interact with each other and with their physical environment
    b. Introduced Species– a species that has been moved by humans from its normal habitat to a new habitat, either intentionally or by mistake
2. Introduction to microscopes
    a. Hand out green sheet of microscope – challenge students to put labels in the correct place
    b. Talk about a few of the key items and go over how to use them
        i. Stage
        ii. Objectives
        iii. Eye piece
        iv. Fine and coarse adjustment
    c. Show the transparency about common mistakes on a microscope
        i. Eyelash
        ii. Airbubble
        iii. Side of coverslip
3. Show students the well slide
    a. Explain taking a worm and putting it in the well with just a bit of water
    b. Do not put the worm under the microscope light for very long
    c. Do not have to draw the worm, but watch and write down observations
4. Have students complete the procedure and extention activities in the book
5. Complete analysis questions 1-4
    a. When writing the paragraph for question 3, students should underline at least 4 observations in their answers
    b. Grade question number 3 using the CS rubric
6. Ask students out loud for answers to the challenge question