A GARDEN OF CELLS

Garden

NEW! GRADE 6 | SCHOOL PARTNER LESSON PLAN

ACADEMIC STANDARD CONNECTIONS

NGSS.6-MS-LS1-1

Conduct an investigation to provide evidence that living things are made of cells, either one or many different numbers and types.

LESSON PREPARATION

Two weeks prior, have students go down to the garden to create mini-ponds: In groups of four they put 1 tablespoon of soil and a handful of grass into a deli container. The remainder of the container is filled until ¾ full with creek water. (Teacher should collect creek water with a pitcher). These ponds are sealed, labeled and stored in the back of the classroom for two weeks.

BACKGROUND KNOWLEDGE

Students should know how to operate microscopes.

LESSON DESCRIPTION

This lesson serves as an introductory phenomenon for the 6th grade unit on cells. It gives more than 5 options for possible cells students can look at with a microscope so it is not necessary for the teacher to use all five.

MATERIALS

- Microscopes
- Microscope Slides
- Cover Slips
- Droppers
- Bulbs from Garden
- Toothpicks
- Scotch Tape
- Elodea Leaves
- (optional): Amoeba, paramecium, euglena cultures ordered online
- Iodine or Methylene Blue
- Colored pencils

CREATED BY
Belle Chasse Academy in 2021

LESSON ACTIVITY

1. Bellwork: What are the traits common to all living things?
2. Students will go down to the garden and collect a bulb (onion or garlic).
3. Students are divided up into the minipond groups from two weeks prior. There should be few enough groups that each can be accommodated with a microscope.
4. Following along with the handout, students will look at five samples under microscopes. More rows can be added to the table in the document if the groups are going to look at more than five specimens. The teacher should not tell the students they are looking for cells. They will use colored pencils to diagram the phenomena and notate observations, inferences, and patterns on the handout included above.
    a. Skin collected from the elbow with a piece of scotch tape. Students will press a piece of scotch tape to their elbow and place the piece of tape between two glass sides.
    b. Cheek swab collected with a toothpick. Students will gently rub the inside of their cheek with tooth pick and rub the residue onto a glass slide. They will then cover it with a plastic cover slip.
    c. Elodea leaf collected from a fish tank (cheaply ordered online). A single leaf will be sandwiched between two glass slides.
    d. Stained bulb cuttings: Peel Your Onion or garlic and take a super thin cutting of the bulb. Put One Drop or Two of Iodine—onto the top of the onion cell. If you are using Methylene blue, you'll need to apply the stain next to the cover slip after it is down. Go light because too much will mean you can't see the cell well.
    e. Minipond water with droppers. These miniponds will smell and should be immediately disposed of after use. A drop of the slimy layer of pond water from the surface of the miniponds will be wet mounted. It can be difficult to locate the microbes so students may have to try multiple times.
    f. Additionally, Euglena, Amoeba, and Paramecium samples can be ordered online and used. A single drop of the liquid cultures can be wet mounted on the slides.
5. Each student is given two sticky notes. Using their observations and inferences from their packet they will write one "I notice" and one "I wonder" statement. They will then place the notes in two designated spaces at the front of the room.
6. Teacher leads oral discussion of "I wonder" questions and "I notice" statements organizing them for similar themes.
7. Individual groups develop a model of what they have seen at the end of the packet.
8. Class comes together to develop a consensus model of these phenomena on the front board.
9. Students watch TedED Video on the Cell Theory

Name: _____
Date: _____

WHAT ARE WE LOOKING AT?

	Drawing	Observations and Inferences
1		
2		
3		
4		
5		

Work with your group to create a model of the phenomena you have been looking at in the space below. You can use diagrams as well as written explanations.