

SCUM SCIENCE

Lesson By: Alec Salvatore

Grade Level: Second

Focus: Students will learn about basic aquatic food chains and will observe microorganisms to gain an understanding of how different organisms acquire energy.

Objectives:

1. Students should become familiar with basic food chains of aquatic environments.
2. Students should also learn about microorganisms and the interdependence of other organisms of aquatic ecosystems.

Standards:

SC 2.4.4 2000

Recognize and explain that living things are found almost everywhere in the world and that there are somewhat different kinds in different places.

SC 2.4.5 2000

Observe and explain that plants and animals both need to take in water, animals need to take in food, and plants need light.

Background:

A food chain describes the relationships and the interdependence of organisms on other organisms. On the bottom are producers, which can produce their own food through the energy of the sun by photosynthesis. Plants are often the best example of producers. Organisms that depend on other organisms for nutrients by eating them are called consumers. First-level consumers eat producers. Second-level consumers eat first-level consumers and the order goes on. There are tiny organisms that do participate in the food chain called microorganisms. “Micro” means small and they are called that because they are too small for the naked eye to see. So scientists use microscope to help study them. These organisms can be producers like plants or they can be first-level consumers. Even though we can’t see them they are really important because they are at the base of this food chain. Without them the next order can’t survive and if they can’t survive then the order after that won’t survive and so forth.

Materials:

1. Pencils
2. Paper
3. Buckets
4. Microscopes (Provided by Camp Adventure)
5. Glass slides
6. Dropper or pipette

Procedure: (40 Minutes Total)

Part 1 [10 Minutes]

1. Ask students what they know about water habitats and the animals that live in them. Take a few answers from the students. Then explain to students the basic concept of a food chain.

2. Ask the students to draw a basic food chain that show what they think eats what.
3. Form groups of three to four students and then escort the groups to the pond.
4. Ask the students if they can identify anything living in or around the pond.
5. Administer buckets to the students and supervise them to collect water samples containing pond algae.
6. Have the students observe what has been collected in the buckets and ask if they can identify anything living or non-living things in the water.

Part 2 [30 Minutes]

7. Escort the students back to the building.
8. Have adults supervise the groups in creating slides by placing pond water droplets onto a slide with a dropper or pipette. Then at an angle, slowly placing the cover glass onto the pond water droplet. (For background on creating slides <http://www.microbehunter.com/2010/08/13/making-a-wet-mount-microscope-slide/>)
9. Have the students look at the different slides and have them draw what they observe on paper.
10. Have the students share their drawings and ask them what they might think they saw on the slides. Were the things observed living or non-living?
11. Teachers lead a class discussion of the food chain that incorporates microorganisms. This can include “What do the microorganisms consume for energy?” Discuss how some microorganism use sunlight as energy and others consume other microorganisms. Discuss how larger fish and other animals are dependent on other smaller fish for an energy source and smaller fish are dependent on microorganisms and etc.
12. Ask the students to draw another food chain that include microorganisms.

Evaluation:

1. Student’s first food chain drawn will be compared to the second food chain drawn.
2. Teachers will listen to group discussions to verify students are making connections.