

MICROSCOPIC PLANTS & ANIMALS

Ages 8+

Learning Objectives

- Students will be able to:
 - Observe microscopic organisms and detritus by using a microscope.
 - Learn to identify these organisms and detritus and place them in a food chain.
 - Build a food chain incorporating these organisms.

Summary: The purpose of this lesson is to have students use a microscope to observe and identify microscopic organisms and detritus in water that form the base of the food chain.

Subject Areas: Science

Time: 1-2 hours

Materials

- Microscopes (one per student possible)
- Glass jar and several containers containing wetland water samples WITH peat and sediment.
- Eye dropper
- Glass slides
- Copies of sheet, “Microscopic Study – Sketch and Identify”
- Field guide on invertebrates
- Pencils
- Data recording sheet for microscopic organisms
- Video-microscope (Optional)

Background: The concept being taught in this lesson is that there are huge numbers of microscopic organisms and detritus that make up the base of the food web in mangrove pond wetlands. This activity aims to familiarize students with the enormous spectrum of invertebrates while practicing research and careful comparison skills.



Activity - Microscopic Plants & Animals

Procedure

1. Explain to the students that there are many different forms of microscopic plants and animals in the water, which they already know is rich and diverse in species. Show students a power point presentation or distribute identification charts and field guides on invertebrates local to your area. Have students try to guess which ones they are likely to see.
2. Students will be divided into small groups of 2, 3 or 4 depending on the number of microscopes available.
3. Explain in detail how to use a microscope, pointing out the different features and how they work.
4. Pass out microscopes. Also pass out slides and eyedroppers, explaining that they are glass and will break if dropped.
5. Demonstrate how to take a water sample from the containers and put it onto the slide using the eyedropper. Explain that too much water will mean that the creatures in the water will have too much space to swim around in, and the water will also go everywhere! Explain how to use the eyedropper: do not tilt it so the creature can go into the rubber “bulb” or it will stick there and not come out.
6. Have each group collect their water samples that have been brought back in the bucket or glass jars.
7. Let the students try to search and find creatures in their water samples. They may have to move the slide around under the microscope slowly to locate a creature. Tell them they will have to identify and draw their creatures later on in the class so to take notes on their features.
8. If students make an exciting find, have them share it with other students in the class. If you have a video-microscope, collect the slide from the student and display it for the class to see.



9. After about 30-45 minutes, pass out copies of the “Microscope Study – Sketch and Identify” sheet (see page 4), and have students fill them in. Students should sketch their creature in the box and note any stand-out features on the lines below. If they know the name of the invertebrate, they can also note the name on the lines below. Explain that if they cannot identify their creature, they should give it a name that reflects its appearance like, “Fuzzy-legs” or “Rodney”.

10. Have students create a food chain for a mangrove ecosystem. Encourage them to consider the activity just completed and how the creatures identified fit into a food chain.

Discussion/Reflection: Some of the creatures may not be easily identifiable from the invertebrate charts, encourage students to look online, in textbooks or go to the local library or university to try and find out what they have found, looking carefully at the shape of the animal, number of segments, legs, wings, etc.

- Ask students why they think these microorganisms are important to the ecosystem.
- Where they fit on the food chain? What animals do they support?
- What would happen to the food chain if we lost these organisms?

References

- Mangrove Action Project, Coastal Education Guide 2022



Microscope Study – Sketch and Identify




