



LESSON 2

Plankton

Grades 4 - 7

Objectives

- To understand what phytoplankton is and why it is important.
- To understand what zooplankton is and that some zooplankton is temporary while others are permanent.

Materials

Pipe cleaners, straws, plasticine, plastic, styrofoam, toothpicks, dish pan for water, photos/drawings of plankton

Concepts

- There are different types of plankton: phytoplankton (plant) and zooplankton (animal).
- Phytoplankton is very important as the base of the food web and as an oxygen maker.
- Some zooplankton is temporary, growing up to be adult animals that are not plankton. These adults look very different than the plankton larva.

Activities

1. Read introductory book

This is the Sea that Feeds Us, by R. Baldwin, Don Dyer (excellent plankton information in the back of the book)

Discuss why plankton is important, introduce food chains and webs, etc.

2. What is phytoplankton?

A. Do you see the plants in your garden move around? Phyto or plant plankton can't move on its own but it can be carried around by the currents. Plankton means wanderer. So phytoplankton is a wandering plant.

All the phytoplankton in the sea makes more oxygen than all the plants and trees on land combined. All sea creatures and every human and animal depend on phytoplankton because

of the oxygen they make. Plankton is at the base of the food web.

B. Compare the parts of a land plant to the parts of phytoplankton.

How are they similar? *They both make their own food by using energy from the sun. They are both green because they contain chlorophyll.*

How are they different? *Plants can't move around and phytoplankton can. You can't see phytoplankton with the naked eye. Plants are much bigger and easier to see.*

C. Talk about different features of phytoplankton. Look at photos and pictures of different phytoplankton.

- Need sunlight to grow and reproduce.
- Has chlorophyll and makes oxygen through photosynthesis.
- Most phytoplankton is smaller than zooplankton.
- Diatoms are the most abundant kind here.
- They float easily, supported by spines or oil droplets and are often joined in chains, looking like sparkling stars or diamonds.

C. Phytoplankton is on the surface of the ocean during day. Why?

A: They need to produce food using the sun's energy, making oxygen in the process. When the sun is gone at night, they sink a little deeper.

D. Act out being phytoplankton. Play follow the leader (current): Pretend to be phytoplankton being moved in the waves and currents. During the day, we are on the surface of the water, gradually sinking at night.

E. Build phytoplankton from craft materials (plasticine, toothpicks, pipecleaners, straws) and test it in a bucket of water to see if it floats, sinks or sits just below the surface. Look at the different shapes of plankton and decide what you think would be the best one. Encourage experimentation.



3. What is zooplankton?

A. What is the smallest animal you can think of? Did anyone think of zooplankton? Zooplankton is animal plankton. It is microscopic. What does microscopic mean? Unlike phytoplankton, zooplankton can't make their own food. They eat phytoplankton and smaller zooplankton. They can wiggle, swim and dart, but are also carried by the current.

B. There are many different types of zooplankton. Show photos and pictures of a variety of zooplankton.

C. Copepods are a type of zooplankton. Show photo of a copepod. "Cope" means oar, describing their oar-like legs. They have long antennae, a single eye and 6 legs! They feed on diatoms (a type of phytoplankton).

Act out being copepods, reminding students that their prey is invisible, not another student!

D. There are temporary and permanent zooplankton. Temporary zooplankton are babies of sea creatures, such as sea stars, crabs and fish, that grow up to be very different looking than their plankton stage. Permanent zooplankton like copepods remain zooplankton all their lives and don't look much different as adults.

E. Worksheet to match zooplankton larvae to their adult form. Students can also try sketching different types of zooplankton.

F. What colour would zooplankton be so they can camouflage themselves?
A: Clear! But they can be seen when they have some phytoplankton in their stomachs!

4. Plankton are at the base of marine food chains and food webs.

Name some creatures that eat plankton and talk about how they eat plankton. Plankton eaters are filter feeders such as clams, sponges, tunicates, herring, barnacles

and baleen whales. Pass around whale baleen. Discuss how baleen whales eat.

Conclusion

Review phytoplankton and zooplankton.

Adapted with permission from **Once Upon a Seashore: A Curriculum for Grades K-6**, by Gloria Snively. This book is an excellent resource and there are several detailed lessons about zooplankton and phytoplankton in the book. It can be purchased from www.kingfisherpress.ca or by fax at (250) 642-6902.