OIMB GK12 CURRICULUM

5th grade **60 minutes**

PLANKTON AND MICROSCOPES

Oregon Science Content Standards:

5.2 Interaction and Change: Force, energy, matter, and organisms interact within living and non-living systems.

5.2L.1 Explain the interdependence of plants, animals, and environment, and how adaptation influences survival.

Ocean Literacy Principles:

3. The ocean is a major influence on weather and climate.
4. The ocean makes Earth habitable.
5. The Ocean supports a great diversity of life and ecosystems.

Goals:

- Learn to use a microscope
- Learn about the diversity, adaptations and functions of plankton

Concepts:

- There are two kinds of plankton: phytoplankton and zooplankton.
- Some organisms are plankton for their entire life, and others for only part of their life.
- There is a great diversity of shapes and types of plankton.
- Microscopes can be used to make observations about plankton.

Materials:

- Plankton
- Plankton net
- Containers and cool sea water
- Glass microscope slides and cover slips (one per student)
- Microscopes (1 per group of 2-6)
- Eyedroppers (1 per microscope)
- PowerPoint of different kinds of plankton and their influence
- PowerPoint of plankton adaptations
- Plankton guide books or on-line resources

Background:

Plankton are any organisms that are weak enough swimmers that they get pushed around by ocean currents. Jellies are the largest plankton at up to 100 feet long, but most plankton are

microscopic. There are two kinds of plankton: plant-like plankton called phytoplankton and animal plankton called zooplankton. Phytoplankton get their energy from the sun and zooplankton eat phytoplankton and other zooplankton. Phytoplankton might be small, but half the oxygen in our atmosphere comes from phytoplankton! In addition, phytoplankton are involved in the seeding of clouds! Plankton have adaptations to keep from sinking (spikes, parachutes, link together, oil drops, etc.) and many are translucent for camouflage.

Prep:
Plankton must be obtained before the lesson. (A GK12 plankton net is available from OIMB.) Water with concentrated plankton must be kept cool until the lesson (e.g. in a refrigerator).

Lesson Plan:

1. Start by talking about what plankton is (organisms that do not swim well, so are moved around by ocean currents).
2. Explain the two kinds of plankton—phytoplankton (plant-like) and zooplankton (animals)
3. Show PowerPoint presentations about different kinds of plankton, from large jellies to small diatoms (a kind of phytoplankton), and plankton adaptations.
4. Explain that students will be working in groups (2-6 students/group depending on how many microscopes are available), and that each group will look at plankton under the microscope.
5. Demonstrate how to use and focus a microscope.
6. Show the class how to make a slide (drop of plankton-filled water on a microscope slide, can cover with thin glass cover slip to focus better)
7. Pass out microscopes, slides and eyedroppers to every group.
8. Come around with plankton water and have students take one drop and put it on each microscope slide, then place a cover slip on top of the water drop
9. Students look at plankton under the microscope and draw all plankton that they see—they should try to draw phytoplankton and zooplankton on separate pieces of paper.
10. Students should use plankton guides or on-line references to try to figure out what kind of plankton they are seeing under the microscope.
11. Have students share with others when they find something interesting or exciting.

Assessment: Drawings, discussions and attempts at identification.

Tips: This goes better if you prepare some microscope slides for the students before the class begins. It is also best if students have had an introduction to using microscopes, and practice time, beforehand.

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