

OIMB GK12 CURRICULUM

4th Grade

45-60 minutes

ALGAL PRESSING

Oregon Science Content Standards:

4.1 Structure and Function: Living and non-living things can be classified by their characteristics and properties.

Ocean Literacy Principles:

5. The ocean supports a great diversity of life and ecosystems.

Goals:

- To have students observe algae and learn how and why scientists preserve specimens.
- Students review the topic of classification.

Concepts:

- Scientists keep detailed records of the organisms and systems they study.
- Preserving algae helps keep a record of its structure and where and when it is collected.
- Algae are classified into different groups.

Materials:

- Algae – easily collected at low tide on the mudflats or tidepools, or anytime on the docks. Flat pieces work best. Have one piece of green and one piece of red per student.
 - Sea Lettuce works well
 - Nori is good
 - Small red algae
 - Any piece small enough to fit on the paper will be okay
- Herbarium paper or cardstock (9.5 by 11 in. or half this depending on the size of the algae samples, two per student)
- Cardboard (two paper-sized piece per student)
- Fabric or sheets cut up into the same size (two per student)
- Shallow pans (enough for pairs of students to share)
- Heavy books to stack on the pile to act as a press

Lesson Plan:

1. Review previous lesson on classification. Have students define dichotomous key and classification. (Write words on the board.)
 - Have the class act out an example of classification – group students by hair color, then by birthday month.

OIMB GK12 CURRICULUM

2. Show students the algae and explain that they will preserve examples. Ask if the students know what this means – to preserve (write on board) – to keep and protect something so that it lasts for many years. Scientists preserve plants and animals for many reasons:
 - They might be the first person to ever find a new organism, and they want to keep a very good sample of it so that they can show other scientists and learn from it. Example – imagine a scientist is roaming through the jungle and finds a new flowering plant with very colorful orange flowers that grow 10 feet high. She might want to take a sample and preserve it so that others can see what it looks like. A well preserved sample is better than a photograph because it shows much more detail.
 - They might want to share with the rest of the world. For example, have you ever been to a museum or aquarium that had a display of stuffed birds or animals?
3. Explain to the students that they will preserve seaweeds today and each will get to press two kinds – red and green. Show examples, and have the students pay attention to the notes written on the bottom of the sample cards:
 - The name of the algae
 - Where it was collected
 - The date when it was collected
 - Preserved by: (their name will go here)
4. Scientists keep very detailed records of their work. Ask why they might do this. For example: later, another scientist could go back and find this type of algae again; or the same scientist might want to try to find it again at a different time of year, or years later.
5. Hand out shallow pans (one per pair) with a little water in the bottom, and 2 sheets of card stock or herbarium paper per student.
6. Demonstrate how to make an algae pressing:
 - write the above information on a lower corner of the paper,
 - place the paper in the bottom of pan, below water,
 - float seaweed in the water and arrange it by spreading it out above the paper
 - lift up the paper very gently and slowly, slightly tilted so the water can run off
 - place herbarium paper with algae on a piece of cardboard
 - cover with the piece of cloth.
7. Have students stack their layers (cardboard, herbarium paper with algae, cloth, cardboard, herbarium paper with algae, cloth, etc. – about 10 layers)
8. Make “presses” by stacking many heavy books on top of the layers
9. Leave these to dry several days

Assessment: When the students get their pressings back after they are dry, ask them what they can tell from the sample and from what is written on the card.

GK12 Fellow: Laurel Hiebert