

Hands-on Marine Biology Activity 1

Topic and Learning Objective:

- Algae is a general group of aquatic photosynthesizing organisms that do not share a common ancestor
 - They are responsible for up to 87% of the world's oxygen
- This group is the hardest working when it comes to making sure we have enough oxygen to breathe
- Seaweed is a type of algae we are all familiar with
 - It washes up on our beaches, is used to elevate the quality of our food, and is even our food
- Seaweed comes in various shapes, sizes, and colors
 - It is all over the ocean and has been existent for 600 million years
- The smallest seaweed is called phytoplankton—it is microscopic
- The largest seaweed is kelp—it can be several feet long
- Seaweed is super important in the ocean food chain because many organisms consume it
 - Ex: Seaweed→Crab→Squid→Elephant Seal→Killer Whale
 - If there was no seaweed, many of these animals wouldn't be able to survive
- Today we will be showcasing the beauty of seaweed by creating our own artistic masterpieces

Alignment with NGSS Grades 3-5

Science and Engineering Practices

Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.

- Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.

Disciplinary Core Ideas

LS2.A: Interdependent Relationships in Ecosystems

- Plants depend on water and light to grow.

Cross-cutting Concepts

Cause and Effect

- Events have causes that generate observable patterns.

Materials:

- Fresh seaweed (from La Jolla Shores)
- Cotton Rag paper
- Sink plug
- Tweezers
- Wax paper
- Paper towels
- Heavy wooden blocks

Detailed Description:

- Instructor will collect enough seaweed for 120 students to use in their art project the day before the lesson
 - Instructor must ensure seaweed remains in fresh tap water and is well rinsed off
- On the day of the lesson, instructor will plug the classroom sink and fill it up halfway with tap water
- Students will choose a maximum of 5 pieces of seaweed from the tub for their art pieces
- Students will place one sheet of paper in the water so that it is submerged
- Students will then place their seaweed above the paper so that it is floating slightly above
- Once students are satisfied with the shape their seaweeds have taken on top of the paper, they must quickly put their hands under the paper and remove it
 - The seaweed's fluid motion should be captured successfully, but tweezers can be utilized to adjust the seaweed's position
- Students should tilt the paper side to side in order to remove excess water and use paper towels to blot
- Students should add a layer of wax paper on top of their design, all of which will be stacked on top of each other with other layers of paper in between and heavy bricks or wooden blocks on the very top
- The art pieces will be left in Pencil Plaza for the remainder of the week to dry

How will you conclude the lesson to enforce the learning objective?

- What are some things that you noticed that were similar between the different types of seaweed? Different?
- How can you explain what seaweed is to somebody who has never seen it?

What science process skills will this lesson exercise?

- Observing, Classifying

Safety Precautions: none