

Activity: Seaweed Pressing

Grade Level All

Created by Seaquaria Ocean Education

Subject Areas Language, Arts, Science

Theme

Using descriptive language and fine arts to explore diversity in marine algae (seaweed).

Goal(s)

Increase understanding of seaweeds and how they are different, while also exploring descriptive language and art

Initial Questions

What makes seaweeds different from land plants?

Activity

Pressing seaweed art and using concepts from English to describe the product

Big Ideas from the B.C. Curriculum

- Adaptations of living things
- Diversity of living things
- visual arts are each unique language for creating and communicating
- Works of art influence and are influenced by the world around us.
- all living things have observable features

Content from the B.C. Curriculum

- classification of living things
- names of local plants and animals
- biodiversity in local environments
- characteristics of life
- photosynthesis

Curricular Competencies

- Explore relationships between identity, place, culture, society, and belonging through the arts

The Lesson

Materials Required

- Assorted seaweeds – from wrack line on beach
- Saltwater (seawater)
- Heavy paper
- Mesh
- Cardboard and newspaper
- Heavy things (e.g. books)

Useful Materials

- Seaweed field guide
 - Paint brushes
 - Seaquaria's Algae Info Sheet
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Introduction Reflect on seaweeds that have been seen at the beach:

- how are they different
- how this might change the role they play – consider the location, size, thickness, colour etc.

Come up with descriptive words that might be used to describe seaweeds and discuss the importance of descriptions.

*Adaptation: French vocabulary, or poems, or haikus etc.

Body

- 1) Lay out seaweed on a piece of heavy paper in the way you want it to look like in the end. Use a paint brush to help fan out the finer pieces. Working with seaweed while it is wet is generally easier.
- 2) Lay mesh over top of the cardboard and place seaweed sheets on the mesh. Place another piece of mesh overtop, then another piece of cardboard. You should now have a 'sandwich':

cardboard
mesh
seaweed sheet
mesh
cardboard
- 3) Place the sandwich on a stack of newspaper and add another stack on top.
- 4) Change the cardboard and newspaper once a day and keep in a well-ventilated area until dry.

5) Use descriptive words, poems, new vocabulary words etc. to describe the seaweed press picture that was made.

Closing

Share the artwork with your class (if this is done as a classroom activity) or share online! We would love to see it – use the hashtag #seaquarialearning and tag us @seaquaria_ocean_education.



Background Information

Algae vs seaweeds: *Algae* is the big umbrella term that includes macroalgae (big algae you can find on the beach) and microalgae (tiny, microscopic). *Seaweed* often refers to macroalgae.

What are algae? Algae is the informal term for a large group of photosynthetic eukaryotic organisms.

- Photosynthetic: the process that turns sunlight into energy in plants
- Eukaryotic: organisms that have cells with a nucleus that is inside a cell membrane

What are the differences in the 3 groups of seaweed?

- Brown algae aka Ochrophyta (scientific class name)
 - Tend to be in colder waters in the northern hemisphere
 - Great food source and habitat for marine organisms
 - Dominant pigment that gives them their color: fucoxanthin which gives the seaweed a greenish-brown color
 - Common brown algae: Bull kelp, giant kelp, kelp, sargassum, rockweed, sea cauliflower
- Green algae aka Chlorophyta
 - Found in almost every habitat – soil, snow, ocean, rocks etc
 - Dominant pigment that gives them their color: chlorophyll which gives them a green color
 - Common green algae: Sea lettuce, sea moss, sea hair, sea staghorn
- Red Algae aka Rhodophyta
 - Oldest groups of eukaryotic algae
 - Largest phyla (group) of algae – 7,000 recognized species; ~5% of red algae found in freshwater environments
 - Dominant pigment that gives them their color: phycoerythrin which gives them the red color
 - Sometimes they can be greenish, yellowish, or brownish which makes them very hard to identify!
 - Red algae stores starch which can be digested by humans
 - Also have “agar” and “carrageenan” which humans use as an emulsifier (a substance that causes 2 liquids that don’t usually mix well to mix)
 - Common red algae: Coralline algae, nori, sea lettuce flakes, yellow seaweed, Turkish towel

Are all plants in the marine environment “algae”? No! There are a few species of land plants that have re-adapted to living in saltwater! For example: Sea asparagus, Eelgrass, Surfgrass

Why are algae important? Algae provides habitat and food for many, many animals living in the ocean! They also produce oxygen for us and for marine animals.

Can you eat seaweeds? Yes! Seaweed/algae has been a part of human diet for hundreds of years! Can you think of anything we eat that might have algae in it?

Structural Differences:

Vascular Plants	these are land plants! They are “vascular” because they have tissue that moves water and minerals throughout the plant.
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Holdfast vs roots	marine plants don’t need roots to conduct water throughout their ‘body’ but do need an anchor, so they don’t get washed away.
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Stipe vs stem	marine plants like kelp don’t have a stem. In land plants, they have a stem that moves nutrients throughout the plant. Stipes of a kelp are for structural support for the kelp blades.
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Blade vs leaf	the blade of a kelp and leaf of a land plant are very similar; they are both used for photosynthesis.
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Gas bladder	allows the marine plant to float
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Fronde	the fronde of a kelp refers to the multiple divided section of blades
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