

## Start At The Very Beginning



**Grade Level:** 3 – 6

**Time Frame:** One class period

**Materials:**

Painting:

Paint and paper

Crayons

Pencils

Collage:

Green construction paper and light green tissue paper  
(optional)

Sand Paper (optional)

Sand/glue

**Key Words:**

**Science:**

Three-finger Alga (*Halimeda incassata*)

Calcium

Sub strate

Habitat

**Art:**

Shape – geometric/organic

Light

### **Activity Summary:**

The ocean is the most amazing source of art inspiration.

In this lesson, students will create a piece of original art after discussing the properties of the three finger algae. They will learn that the sea bottom is made up of a substance called calcium carbonate.

The leaves of the three finger algae contain calcium and when the green algae dies, the calcium in the leaf segments remains on the sea bottom and builds the reef.

The sea bottom in Florida is made up of calcium carbonate.

### **Learning Objectives:**

#### **Art**

Students will be able to:

- \* Glean information from the environment, using the five senses
- \* Identify colors, textures, forms, and subjects in the environment
- Create artworks, using a variety of colors, forms, and lines
- Learn to coordinate their hands and minds in explorations of the visual world
- Learn to make choices that enhance communication of their ideas
- Make connections between visual arts and other disciplines

#### **Science**

- Communicate observations and provide reasons for explanations.

### **Ocean Literacy Principles**

The Ocean, and life in the ocean shape the features of the Earth.

The Ocean supports a great diversity of life and ecosystems.

### **Climate Literacy Principles**

The chemistry of ocean water is changed by absorption of carbon dioxide from the atmosphere

### **Background Information:**

The ocean is the biggest part of our planet and it is largely unexplored.

The ocean bottom of Conch Reef, where the Aquarius Habitat is located, is made up of a substance called calcium carbonate. Calcium carbonate is found in reefs and sand. It looks like an egg shell.

The leaves of the green algae (*halimeda incrassata*) – three finger algae – contain calcium carbonate. The three finger algae uses the calcium carbonate for support. When the green algae dies, the calcium carbonate in the leaves remains on the sea bottom and builds the reef.

Scientists have studied how the ocean pH is changing in the sea. This change is called ocean acidification and it refers to the fact that our ocean is becoming more acidic. The ocean is losing some of the important things that sea creatures need to build shells and skeletons. If the three finger algae is not able to produce as much calcium carbonate as it used to, the reef will not have its major building blocks.

### **Activity:**

There are two types of shapes that we refer to in art:

Geometric and Organic. Geometric shapes are man- made. They are the shapes you most likely see **inside** your classroom, such as the white board or the TV or the window frame. These shapes have hard edges.

Organic shapes are made by nature and you can see them if you look **outside** your classroom. Clouds and trees and leaves are organic and they do not have hard, edges. They are quite often unusual shapes.

The shape of the leaves of the three-finger algae is important. Notice that each leaf is smaller at the base. This shape allows the plant to lean into the direction of the current and be flexible without any damage to the plant. It also provides a protective habitat for small fishes.

Take a sheet of art paper or sand paper. Students may create the sandy sea floor by spreading glue on the paper and covering the paper with sand.

Collage: cut out sections of leaves from construction paper and tissue paper.

Lay each construction paper leaf one above the other, and then overlay the tissue paper to create a three-finger algae stem.

If students are painting or drawing, they should create each leaf segment and continue to create each leaf segment so that it builds on the one below it.

Each leaf segment has three fingers. Place the construction paper or draw or paint the leaves so that each leaf connects to the leaf below. Students should continue creating a few groups of plants and show the white, dead three finger algae leaves that will make up the sea bottom.

### **Evaluation**

Students create group of three – finger algae plants showing understanding of the placement of each segment and used organic shapes to create their piece of art.

### **Extension**

Students use the internet to research organisms that live on or around the three-fingered algae.

### **Resources**

[http://biogeodb.stri.si.edu/bocas\\_database/search/species/1714](http://biogeodb.stri.si.edu/bocas_database/search/species/1714)

This article shows the distribution of halimeda and shows several images of the three fingered alga.

### **Acknowledgements**

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