

Staghorn Coral – *Acropora cervicornis*



Staghorn Coral by Jacqui Stanley 2010

Activity Summary

In this lesson students will learn about the importance of staghorn corals and their part in building the reef. Staghorn coral has been one of the three most important Caribbean corals in terms of its contribution to reef growth and fish habitat. Students will discuss the coral habitat in relation to creating a safe haven for juvenile fish, and for building the reef and protecting the substrate.

Students will create their own version of the staghorn coral as a habitat for young fish. This lesson is well suited to collage, painting and crayon.

Grade Level: 3 – 6

Time Frame: One class period

Materials:

Painting:

- Paper suitable for painting or crayons
- Poster paints and brushes
- Crayons/pencils

Collage:

- Pictures of fish and coral reefs from magazines
- Construction paper and glue

Found objects such as pieces of fabric, buttons, hair ribbon
Color Wheel
Samples of yellow and purple/ green and red construction paper to illustrate contrast

Learning Objectives:

Art:

Students will be able to:

- Create artworks, using a variety of colors, forms and lines
- Identify colors, textures, forms, and subjects in the environment
- Identify connections between the visual arts and other disciplines in the curriculum

Science:

Students will be able to:

- Communicate observations and provide reasons for explanations
- Use form to explain function
- Use function to explain form

Vocabulary

ART

BALANCE - a design principle concerned with the arrangement of one or more elements in a work of art so that they appear symmetrical (even) or asymmetrical (uneven) in design and proportion

PATTERN - Artists create pattern by repeating a line, shape or color over and over again. Sometimes a regular repetitive pattern will suggest movement.

CONTRAST – contrast colors are the opposite colors on the color wheel. The greater the difference in colors, the more attention they attract. Contrast cannot happen without the opposite color or line being present.

COLLAGE – is a piece of art made by pasting paper or objects or text on to cardboard or paper. The objects can be whatever you wish, for example tissue paper, wrapping paper, newspaper pages, magazine pages, cardboard, foil, metal, plastic, fabric, wire, photographs, found objects such as feathers, or stones, and broken toys or appliances or cut up paintings that haven't worked, or paintings deliberately created to be collage elements.

SCIENCE

STAGHORN CORAL – is a stony or hard coral that forms the basic building block of tropical coral reefs. Animals secrete calcium carbonate to form hard cups that provide protection for the coral animals. Staghorn coral is a branching coral. The coral gets its color from the zooxanthellae that live in the coral polyp's tissues.

ZOOXANTHELLAE – algae-like organisms that live in the coral polyp and aids in the growth of the coral.

POLYPS – the animals that form hard corals. The polyps form calcium carbonate.

CALCIUM CARBONATE – is a chalky substance like an egg shell. Calcium carbonate forms the hard corals and is the basic substance that forms the coral reef.

COLONIES – a group of related animals.

Preparation

Images of staghorn coral

Projected image of Staghorn coral painting – see start of lesson

Web sites showing diagrams of coral polyps

Sample of calcium carbonate (egg shell)

Procedure

- 1) Look at the image at the start of the lesson.
- 2) The staghorn coral grows in colonies which look very much like a huge tangle of branches.
- 3) The staghorn coral branches out much like the branches of a tree. The outer surface is covered with small corallites or polyps. They are usually white while the branches of the corals are yellow-brown.
- 4) Begin by deciding how to create the coral reef. You may choose a blue background or you may choose a different background that will provide a good back drop for the coral. Example: black and white news text (perhaps a story about marine sanctuaries) would provide a neutral background for the coral.
- 5) Begin building the reef. Remember, the branches of the staghorn coral appear tangled, so start with one branch of coral and then decide where to place more branches so that they appear to almost like a nest of corals. If this lesson is using collage as a medium, you may use torn strips of paper, pipe cleaners, roughly cut pieces of construction paper or branches cut from a magazine page or a combination of all!

- 6) As you build the reef, one layer upon the other, remember that the corals that are furthest away from the viewer will lose light, so they may have a blue color. The corals that are closest to the viewer will be most vivid or have the brightest colors.
- 7) When you have built your coral reef, think about the small fish or other creatures that may live in this very safe place.
- 8) Remember the lesson about the mat zoanths? They live on the reef beneath staghorn corals. You may want to add some bright patches of mat zoanths!
- 9) Show your beautiful coral reef to your class!

Education Standards

<p>National Education Standards</p>	<p>ART : NA-VA.K-4.1 UNDERSTANDING AND APPLYING MEDIA, TECHNIQUES, AND PROCESSES NA-VA.K-4.2 USING KNOWLEDGE OF STRUCTURES AND FUNCTIONS</p> <p>SCIENCE: E.U.5 Form and function a. Form–Form is the shape of an object. The goal is for students to use form to explain function. b. Function–Function is the normal or characteristic action of anything. The goal is for students to use function to explain form.</p> <p>ENGLISH/LANGUAGE ARTS NCTE/IRA Standards 3) Students adjust their use of spoken, written, and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes. 11) Students participate as knowledgeable, reflective, creative, and critical members of a variety of literacy communities.</p>
<p>Ocean Literacy Principles</p>	<p>The Ocean supports a great diversity of life and ecosystems</p>

Evaluation

Students create their version of a coral reef and clearly show that they understand what this is by using contrast and color.

Extension

In groups, students create a coral reef featuring staghorn corals as a refuge for a wide variety of marine life.

Resources

<http://www.nmfs.noaa.gov/pr/species/invertebrates/staghorncoral.htm>

The web site is a comprehensive resource showing staghorn coral as well as providing detailed information about the coral species.

Acknowledgements:

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This lesson was developed for NOAA National Marine Sanctuary Programs by Jacqui Stanley from Young Audiences Arts for Learning.