Breath of Life

Introduction

In the book On Kiki's Reef, author Carol L. Malnor introduces children to the life of a green sea turtle. Although sea turtles live most of their lives in the ocean, they must breathe air to live. In this activity, students learn the best way for humans to breathe.

Materials Needed

- The book On Kiki's Reef

Key Concepts

- All animals, including humans, need oxygen to live.
- Oxygen is important for all parts of the body.
- The brain needs oxygen in order to think clearly, focus, and concentrate.

Procedure

1. Explain to students: Turtles need air, just like people. Every so often, they must to come up to the surface of the water to breathe. How often they need to breathe depends on their level of activity. A resting or sleeping turtle can remain underwater for 4-7 hours. (Depending on the age of your students, you may want to add: a turtle caught in a net becomes stressed and breathes very fast. It can drown within minutes.) In humans, breathing affects every part of the body. The brain uses oxygen to help you with focus and concentrate so you can learn and think clearly.
2. Have students practice breathing deeply following the instructions below. Demonstrate the process first, before leading children through it.

- Sit up straight, with shoulders back and relaxed. Put one hand on your belly so you can feel your belly moving in and out when you breathe in and out.
- Begin by breathing out completely.
- Slowly breathe in deeply. Your belly, abdomen, will move out. Do not to raise up your shoulders. (Many people breathe shallowly, at the top of their lungs, so breathing deeply might take some practice.)
- Hold your breath for a count for 3 seconds. (Count out loud for students.)
- Slowly breathe out. Your belly will move in. Hold for 3 seconds.
- Repeat this in and out cycle 3 times.

Note: You may have children do deep breathing before beginning any academic work. Deep breathing also as a way to help children calm down after coming up from recess.

Nature Connections

Take a tour of your campus and identify the animals you see. Back in the classroom, research the different ways they breathe. For example, frogs breathe in 3 ways: through their gills, nostrils, and skin. Birds breathe through their nostrils and mouths. Insects breathe through their abdomens.

Additional Resources

Learn more about the human respiratory system at: http://kidshealth.org/kid/htbw/lungs.html

Find out more about how animals breathe at:http://breatheornot.com/category/how-animals-breathe/

Time students for a minute and have them count the number of times they inhale. Students will have different numbers. Compare their breathing rate to other animals. This chart of animal breathing rates will get you started: http://www.asthmacare.us/ac_blog/?p=1594

Clownfish Tag

Introduction

In the book On Kiki's Reef, author Carol L. Malnor introduces the concept of teamwork (symbiosis) among sea creatures that live on a coral reef. In this activity, children play an active game as a way to experience the partnership between clownfish and anemones.

Materials Needed

- On Kiki's Reef
- Playing area large enough to accommodate your entire class.

Key Concepts

- Species depend upon one another and relationships may be mutually beneficial (symbiosis) or competitive.
- Clownfish and anemones work together to share food and protect each other.

Procedure

1. 1. Read the page from On Kiki's Reef about clownfish and anemones.

2. Explain to the students that they are going to play a tag game about clownfish and anemones. The object of the game is for a predator (large fish) to tag a clownfish. A clownfish is "safe" and can't be tagged when protected by anemones.

3. Divide students into groups of three consisting of two anemones and one clownfish.

4. Have groups spread out over the playing area with a clownfish standing in between two anemones. Choose a clownfish from one of the groups to become the "predator."

5. When the predator yells "swim," all of the clownfish must leave the safety of their anemones and "swim" (run around) avoiding the predator. A clownfish can dart into a pair of anemones for safety, but can't go into the same pair more than once. Only one clownfish can go into a pair of anemones at one time.

6. Anemones can protect the clownfish from a predator by waving their venomous tentacles (arms). However, they are anchored to the ocean floor and cannot move their feet. If a predator is touched by an anemone, the predator is frozen for a count of 5 seconds.

7. If a clownfish is tagged, he/she becomes the predator, and a new round begins.

Note: To speed up the game you can choose more than one predator or make the playing area smaller (habitat destruction).

Nature Connections

- Follow up the game with some of these questions:
  - Did they observe cooperation?
  - What strategies did the anemones use to protect the clownfish?
  - Did any predators get stung by anemones?
  - How did the size of the habitat affect the game?

- Explore other partnerships found in the story: cleaner fish and groupers, angelfish and turtle, snails and coral, crabs and coral.

Additional Resources

Watch a video of clownfish swimming among anemones:

http://video.nationalgeographic.com/video/kids/animals-pets-kids/fish-kids/clownfish-kids/

Read fun facts about clownfish:

http://www.ducksters.com/animals/clownfish.php

http://animals.nationalgeographic.com/animals/fish/clown-anemonefish/

Edible Coral Polyps

Introduction

In the book On Kiki's Reef, author Carol L. Malnor introduces children to life on a coral reef. Although a coral looks like a rock, the surface of the reef is covered with a layer of living corals. In this activity, children learn about coral as they create an "edible coral polyp." This activity is adapted from the California Academy of Sciences.

Key Concepts

- Corals are animals called polyps.
- When polyps die, their skeletons form the coral reef.
- A type of algae (zooxanthellae) lives inside the tissues of the coral, providing them with energy.

Materials Needed

- Paper plates (1 per student or group)
- toothpicks (1 per student or group)
- plastic straw (1 per student or group)
- 2 inch sections of banana (1 per student or group)
- sour candy straws or twizzlers cut into 1 inch pieces (6 per student or group)
- sugar sprinkles (same color as the sour candy straws or twizzlers)
- jam
- round crackers (1 per student or group)

Procedure

1. View photos of this activity at the California Academy http://www.calacademy.org/teachers/resources/lessons/build-a-coral-polyp/
1. In your own words, explain corals using the information in the back of On Kiki's Reef titled "A rainbow of corals puts on a show." Tell students that corals are animals. They don't have plant parts and can't make their own food. Corals are unusual animals be cause a type of algae lives inside their tissues and gives them energy.
2. Tell students they're going to make a model of a coral polyp that they can eat. Pass out materials.
3. Give them the following directions:

•Place the banana section on the paper plate. Make a hole (the mouth) in the top of banana using the straw.

•Create six holes with a toothpick surrounding the central mouth. Poke 6 candy straws or twizzlers (the tentacles) into the holes.

•Add sprinkles (zooxanthellae) to the banana.

•Spread jam on a round cracker and place the banana on top of it (coral is attached to the substrate).

•Add oyster crackers around the base (calcium carbonate skeleton). Notice that the skeleton is on the outside of the coral polyp. When polyps die, living corals grow on top of the skeletons building up a coral reef.

4. Tell students they can pretend to be a parrotfish that eats coral. They can eat their polyps, but since fish don't have hands, encourage your students to eat without using their hands.

Note: Before eating their polyps students can place individual coral polyps together to form a colony.

Nature Connections

- Look at the map in the back of the book to identify where coral reefs are found around the world.
- Bring in samples of coral for students to touch.
- Look through the illustrations in the book to notice the different shapes and colors of actual corals.

Additional Resources

Over in the Ocean, In a Coral Reef

http://www.dawnpub.com/our-books/over-in-the-ocean-in-a-coral-reef/

Fun facts and photos of coral and coral reefs:

http://animals.nationalgeographic.com/animals/invertebrates/coral/

http://kids.nceas.ucsb.edu/biomes/coralreef.html

http://www.ecokids.ca/pub/eco_info/topics/oceans/coral_reefs.cfm

http://www.kidsdiscover.com/spotlight/coral-reefs/

Activities based on the book *On Kiki's Reef* - by Carol L. Malnor

Searching for a Seahorse

Introduction

In the book On Kiki's Reef, author Carol L. Malnor introduces children to camouflage as a defense strategy that a seahorse uses. "The hidden seahorse takes first prize for wearing the best underwater disguise." In this activity, students will practice the art of camouflage by coloring paper seahorses and hiding them around the room.

Materials Needed

- The book On Kiki's Reef
- Copies of the seahorse handout, 1 copy per student and 1 for you
- Crayons or colored pencils
- Scissors
- Adult volunteer needed in classroom for 5-10 minutes

Key Concepts

- Camouflage is a defense strategy used by animals, including the seahorse.
- Some animals, like the seahorse and octopus, have the ability to change their color.

Procedure

1. Before class begins, prepare three "camouflaged" fish to use as example for the students. Color in the blank clownfish outlines to blend in with the surface they will be laid against.
1. Show students the seahorse page in On Kiki's Reef and discuss camouflage.
2. Tell students that 3 camouflaged seahorses are hidden around the room. Give them 2 minutes to find them. Remind them not to point out where the seahorses when they see them so that others can have the fun of finding them.
3. When time is up, reveal the locations of the seahorses. Ask students what made them camouflaged (They were the same color as the background they were against.) Hold them against different back grounds for emphasis.
4. Give each student a handout and tell them to color the seahorses so they are camouflaged against a place in the room. Encourage creativity.
5. Have them cut out the seahorses and write their names on the back of it. Then have them place their seahorses so they "hidden in plain sight."
6. Have the adult volunteer come into class to find the hidden seahorses. Give the adult 3-5 minutes to scurry around the room finding as many seahorses as possible and picking them up as he/she finds them. When time is up, reveal any seahorses that weren't found.

Note: Choose an enthusiastic and animated adult volunteer. My principal came into my classroom and made it great fun for the kids.

Nature Connections

- Seahorses cling to sea grass, where they hide themselves. Go outside and find land creatures that live in the grass, such as ants, worms, or grass snakes. Are any camouflaged? Make a drawing of what you find.

- An octopus is a sea creature that changes color to camouflage to protect itself. The stripes on a clownfish help it hide amidst the tentacles of an anemone. Find out about other animals that use camouflage as a defense mechanism.

Additional Resources

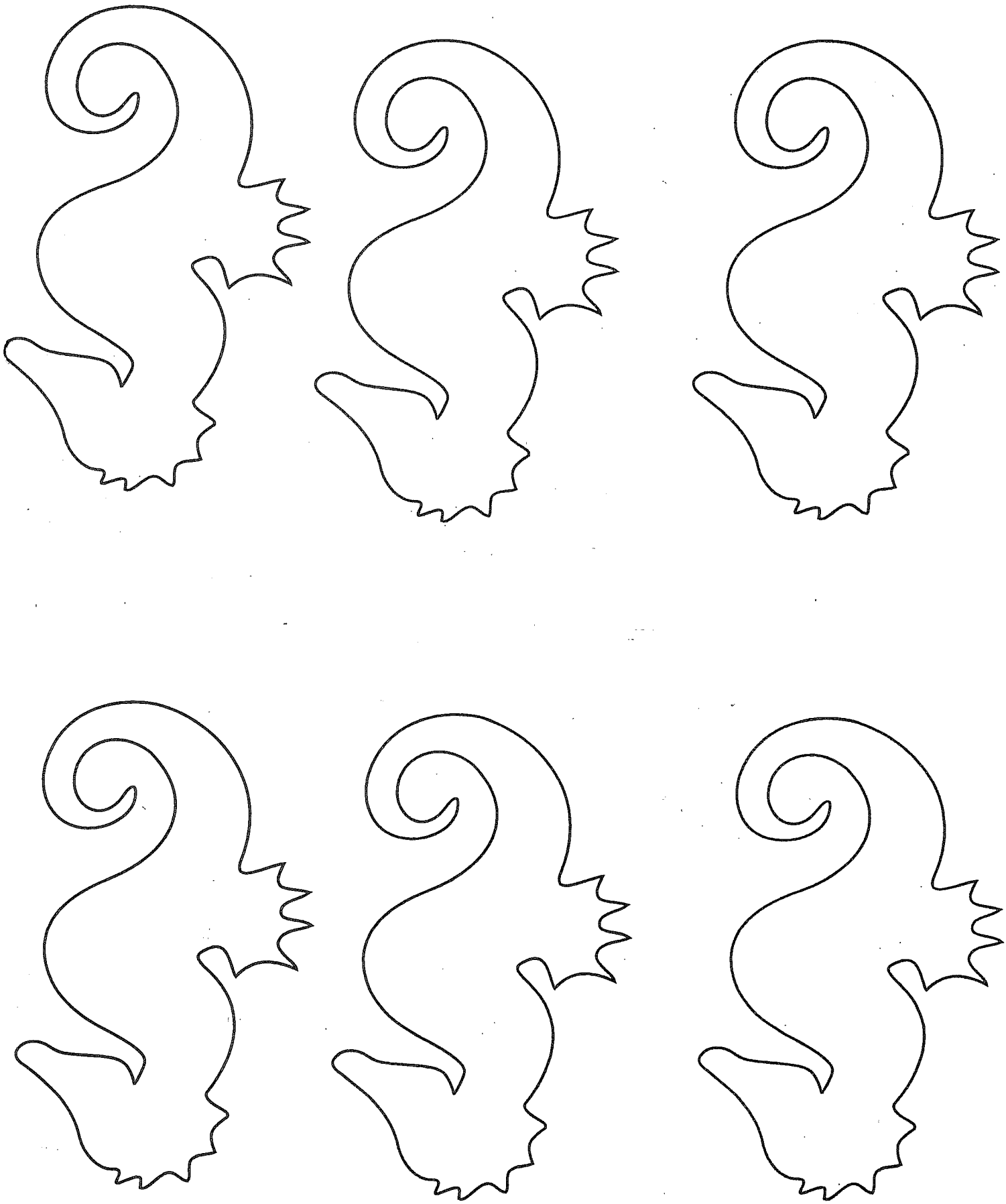
Seamore the Seahorse swims through the ocean and discovers and alphabet of sea creatures in the book Swim through the Sea.

http://www.dawnpub.com/our-books/a-swim-through-the-sea/

Seahorses have many unique adaptations. Read about them here:

http://kids.nationalgeographic.com/kids/animals/creaturefeature/seahorses/

http://www.nwf.org/Kids/Ranger-Rick/Animals/Fish/Seahorses.aspx



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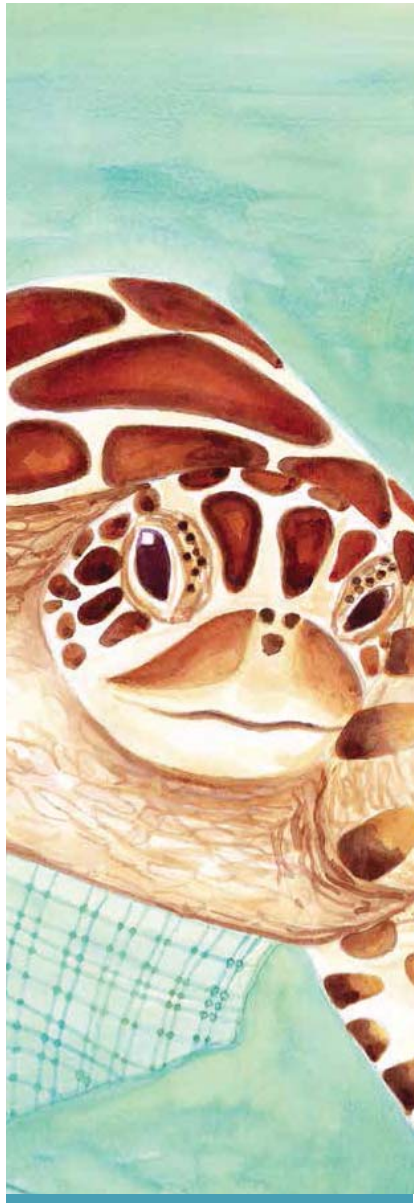

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