



Next Generation Science Standards

2-LS4-1

Common Core ELA

Literacy W.K.2

Literacy W.1.2

Literacy W.2.2

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Exploring Marine Science and Aquaculture Grades K-2

Sea Animal Movement

Developed by the University of Maine Cooperative Extension

Revised and formatted by Maine Agriculture in the Classroom

Activity Description

This activity introduces youth to some of the sea animals and their movements by utilizing gross motor skills through a stretching activity.

Learning Objectives

Students will:

- Model sea animal movement through body movement
- Describe how sea animals move
- Brainstorm why an animal moves the way it does

Essential Questions

- How do land animals move as compared to sea animals? Why?
- What adaptations do sea creatures have that allow them to move in the ocean?

Background Information

Animals living in the sea move in very different ways than animals on land or in the air. The ocean environment provides a unique set of demands on these creatures, and they have developed different adaptations in order to survive.

Vocabulary List

Adaptation: a change in a plant or animal that makes it better able to live in a particular place or situation.

Materials

- Sea Movement cards
- Colored pencils, crayons
- Scrap paper/newsprint
- Ocean Life photos from *Lesson 1 Sea Creatures*
- *How Sea Creatures Move* information sheet



Procedure

Engage:

1. Introduce the activity, and access the youth's prior knowledge:
 - a. *How many different ways can we move our bodies?* (Give all of the participants an opportunity to demonstrate how our bodies can move.)
 - b. *What about animals? Can animals move their bodies the same ways that we can move ours? Why can't they?*
 - c. *Can we move our bodies like animals move their bodies? Is this true for all animals?*
 - d. *How do you know?*
 - e. *Today, we are going to explore some of the ways that sea animals' bodies are shaped and how they move through an activity involving movement and stretching.*
2. Show Ocean Life photos from Lesson 1 Sea Creatures. Discuss each creature's body shape and how they move. Use the How Sea Creatures Move information sheet as a resource.

Explore:

3. Begin by asking all of the youth to spread out to find their personal space. A good way to do this is to hold hands, standing in a circle, let go, and take three giant steps backwards.
4. Next, tell them that you are going to use flashcards to show them the movements. Flip the top card off the deck, show it to your audience, and then model the move for them.
5. While the card is being shown, ask questions and encourage youth to make observations about how the animals move and characteristics that the animals have that we don't.
6. Each move should be demonstrated for approximately 10 seconds.
7. If you have a participant who is physically unable to do the moves, assign a buddy who will demonstrate for them. The person not doing the pose can try to guess which animal is being modeled, similar to charades.

Behavioral expectations/rules:

- a. *Please stay in your own space while we are doing this activity*
- b. *Some of these poses are challenging, so it is okay if we don't all get them right the first time*

Explain:

8. Facilitate a discussion about the movements:
 - a. *Which animal was most challenging to model? Why?*
 - b. *Which animal was the easiest to model? Why?*
 - c. *Why do you think sea animals move differently than land animals?* (because they live in the ocean)
 - d. *We have arms and legs. What do sea creatures have? How do these adaptations work better in the ocean?*
 - e. *We have arms and hands. What do crabs have? How do these adaptations work?*

Elaborate

9. After they have done all of the moves on the cards, ask the youth what their favorites are and repeat them. They can do a "fist to 5" to indicate their favorite (1 being least favorite, 5 being most favorite), as you review the cards.
10. When completed, they should discuss how it felt to move their body like sea creatures. For those who were unable to participate in the movements, they can describe what it looked like when others were moving their bodies.
 - a. *Are any of these features unique to the animals living in water?*
11. Ask youth to return to their seats/desk.
12. Distribute colored pencils and scrap paper while prompting the youth to think of an imaginary sea creature superhero.
 - a. *Imagine a sea creature that magically becomes a superhero.*
 - b. *Draw a picture of what this superhero looks like, and be prepared to tell us about all of its body features and how it moves.*



13. Ask for a few volunteers to describe their superhero while they show their drawing.
14. Next, ask them to think more deeply about their superhero:
 - a. *Pretend that your superhero is called upon to help save the day - but on land instead of the sea!*
 - b. *How will your superhero get from place to place on dry land?*
 - c. *What special things might your superhero need to survive on land?*
15. Direct younger participants to continue to draw a picture as they think about the scenario. Older youth can write stories about their creations (for example, a giant octopus uses its suction cups on its legs to attach from one city building to another).
16. If youth are creating stories, be sure to emphasize the differences between fiction and nonfiction, and the role of science in both.
17. As time allows, ask youth to share their creations with the rest of the group.

Extension Ideas

- These stretches can also be used as a great start to any of the lessons in this toolkit.
- Discuss Life Cycle Adaptations: A frog starts as a tadpole in water. What does it need to move in water? What change does a tadpole make to become a frog? How is it now adapted to move on land?
- For older youth: There is a fish called the mudskipper that has an amazing adaptation; the ability to walk on land by wiggling and using its strong pectoral fins. Watch this National Geographic video (2:06 minutes): <https://www.youtube.com/watch?v=FLh4ODMBGJE>

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How Sea Creatures Move Information

Sea turtles use their 4 flippers like oars propelling them through the water, their shells are streamlined in shape, which also helps their movement. On land the flippers pull them across sandy beaches.

<http://seaturtleexploration.com/explore-and-learn/sea-turtle-facts/>

Jelly fish can float on ocean currents or swim. The top of the jelly fish is called the bell. It pulsates (squeezes together, then relaxes) to move it along. <http://earthsky.org/earth/how-do-jellyfish-swim>

Fish swim by flexing their bodies and tail back and forth, stretching muscles on one side of their body while relaxing muscles on the other side of their body. This propels them through the water.

https://tpwd.texas.gov/kids/wild_things/fish/howdofishswim.phtml

Tiger sharks have very long fins that help them move through the water. They also have a tail with a long upper portion that allows them to move very quickly. Their back is also high and combined with the dorsal fin (the one on the back) allows the shark to change direction quickly. <http://www.bioexpedition.com/tiger-shark/>

Sharks - some sharks move through the water by moving its tail. Sharks must keep swimming or they will sink.

www.enchantedlearning.com/subjects/sharks/anatomy/Swimming.shtml

Starfish - The underside of a starfish is covered with hundreds of little tub feet which it uses for moving around, attaching tightly to rocks. Each tube foot swings, lifting up and swinging forward, then planting itself on the ground and pushing. www.madorepote.com/science/movement.htm and <https://www.youtube.com/watch?v=1pQe9dWXuQ>

Octopus - The body of an octopus is covered by a mantle (a covering with muscles) . The octopus sucks water into a muscular sac in the mantle cavity that surrounds their bodies and then quickly pushes the water out a narrow siphon (like a funnel), causing it to move by “jet propulsion.”

<https://www.vanaqua.org/learn/aquafacts/invertebrates/octopuses-and-squids>

Whales move through the water by moving their tail (flukes) up and down. The fin on the top is the dorsal fin and it keeps the whale from rolling side to side when it is swimming. Flippers help to change direction.

<https://www.reference.com/pets-animals/whales-swim-7e8cc2df773d0f76>

Manatees move their tails up and down to move forward through the water and its flippers and tail to steer.

<https://www.manatees.net/>

Whale shark is the largest fish on the planet (whales are mammals). They are very docile and are not threatening to humans. They swim by moving their bodies from side to side. <http://goodnature.nathab.com/celebrate-international-whale-shark-day-with-7-fun-facts-about-whale-sharks/>

Sea anemones the bottom of a sea anemone has a tube shaped muscular, sticky foot that holds onto rocks or other solid surfaces. Most anemones like to stay where they are, but some move by sliding along very slowly on their foot.

<https://www.nwf.org/Kids/Ranger-Rick/Animals/Fish/Sea-Anemones.aspx>



Boat Pose



Bridge Pose



Crab Pose



Dolphin Pose



Fish Pose



Jellyfish Pose



Lobster Pose



Octopus Pose



Puffer Fish Breathing



Seahorse Pose



Seal Pose



Star Fish Pose

