



Nature-Watch Activity Kit

Tide Pool Wind Chime

(Nature Watch Kit #138)

Kit Contents

<u>Item:</u>	<u>Kit Size</u>	
	<u>25</u>	<u>100</u>
Sea Urchin Spines	125	500
Starfish	25	100
Wind Chime Cord Pieces	125	500
Key Rings	25	100
Baggies	25	100
Glue	1	2
Instructor Manual	1	1

This page includes the Next Generation Science Standards (NGSS) mapping for this kit and Science, Technology, Engineering, and Math (STEM) extensions (on back) to use in adapting and extending this activity to other subject areas.

**See Back for
STEM Extensions**

Next Generation Science Standards Alignment

3-PS2-2. Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

3-LS4-3. Construct an argument that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

5-ESS2-1. Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

5-ESS2-2. Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.

MS-PS2-4. Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.

MS-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.

MS-LS4-2. Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.

This Nature Watch Activity Kit contains an Instructor Manual and materials to implement the curriculum. The kit was designed to be used with adult supervision only. Unsupervised use is not recommended.



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STEM Extensions

Science

Transform your classroom into an intertidal zone. Include 3-D creations or drawings of tide pools, beach, waves, and the plants and animals that live there. Or on a smaller scale, transform an egg carton into an intertidal zone, using the egg hollows as tide pools and the lid as the splash zone.

Learn to recognize the shells of the animals living in the intertidal zone by playing a game. Obtain shells (or make cardboard cut-outs of the shells) of whelks, mussels, clams, snails, etc. Mix them up in a box and pick one out. Have a classmate name the animal it comes from and tell some characteristics of the animal. Then pass the box to the next person for another round.

The rising sea levels, ocean acidification, and warming water temperatures that are occurring as a result of global climate change are affecting tide pools. The animals that live in them have had to adapt to the changes. Go online to research how they do that, and predict a best-case scenario and a worst-case scenario about what could happen for them in the future.

Technology

Use a computer-based paint program to create a tide pool habitat hide-and-seek. Create rocks, sand, and water and then “hide” some of the typical tide pool creatures among the landscape. Hint: Remember that some of the animals burrow in the sand, wedge themselves into rock crevices, or camouflage themselves against their surroundings. Ask a classmate to try to find and name all of the hidden animals.

Use a design program and word art to make an informative sign for beach-goers that advises them about how to behave in an intertidal zone. Keep in mind the beach-goers’ safety, the well-being of the plants and animals that live there, and the physical structures of the intertidal zone. Imagine that your sign would be posted at the entrance to the beach.

Engineering

Design and build a tool that will help you look underwater into tide pools for a closer look at the life inside. Some characteristics to consider are for your tool to be waterproof, convenient to hold, and big and long enough to let you see into the water. Test your tool in a sink before taking it to the ocean.

Choose one of the animals described in the activity kit and come up with a useful or fun invention that mimics some characteristics of that animal. This idea of copying the traits of other living things is called biomimicry and it happens in nature as well as in man-made objects. Describe, draw, or even build your invention.

Math

The sea urchin and the starfish are part of the echinoderm phylum of animals, which all have radial symmetry. That means their body can be divided equally around a central point, almost like cutting a pie. Think of some other living and non-living things that exhibit radial symmetry and make a poster displaying them.

Fishermen and others who work on or near the coast rely on tide tables to safely navigate close to shore. Make a tide table by checking the newspaper (or Internet) daily for local low and high tide times. After tracking the tides for one month, make a graph. What kinds of patterns and changes do you see? To go one step further, record the moon’s phases, too, and look for any correlations between the moon’s phases and the tides.