

## LESSON 1

### **Water Works**

Why is water an important part of the Rocky Seashore Habitat?  
How do the plants and animals that live in this habitat deal with the constant drenching and drying that occurs?

## LESSON 2

### **Seashore Charades**

What happens when people come to the Seashore?  
How do they help the habitat?  
How do they hurt the habitat?

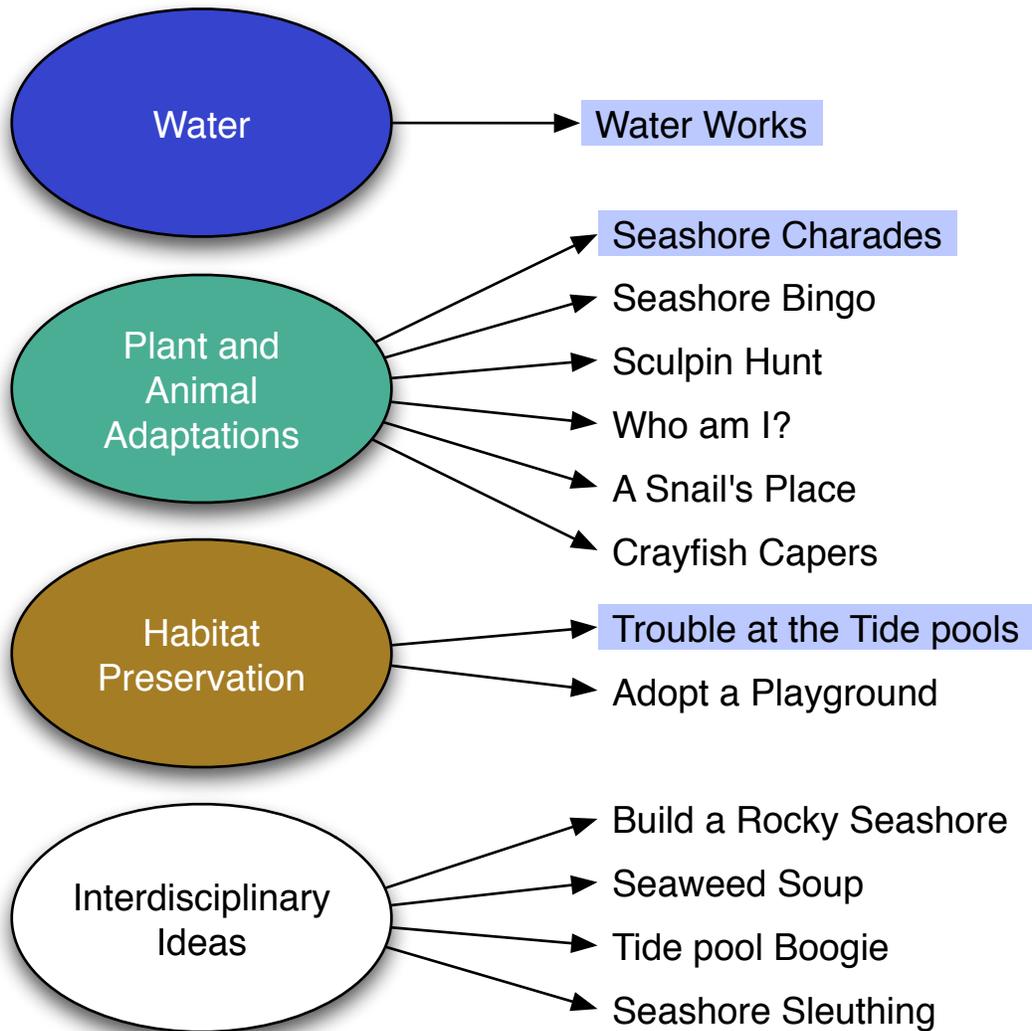
## LESSON 3

### **Trouble at the Tidepools**

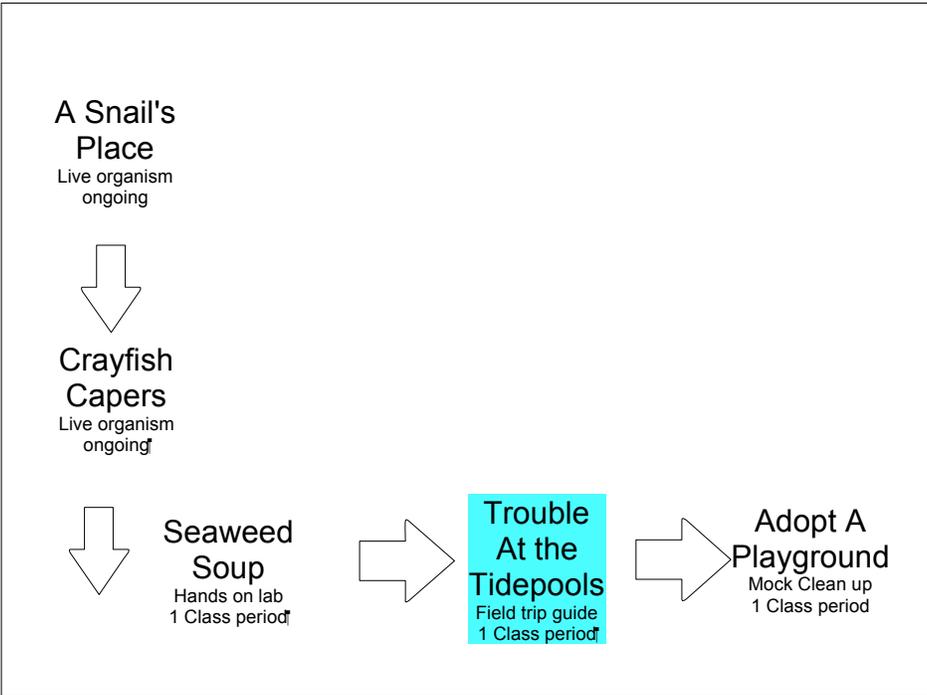
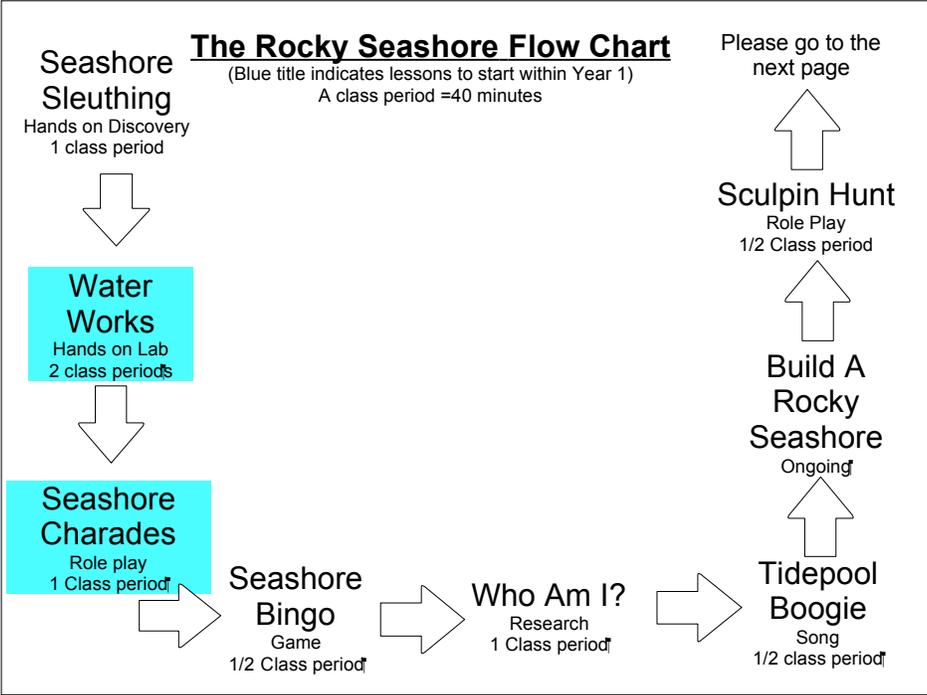
# ROCKY SEASHORE

Grade 1

# CONCEPT MAP



Highlighted text denotes recommended first year lessons



# WATER WORKS

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Rocky Seashore (Grade 1)

## Lesson Overview

Students investigate properties of fresh water and salt water through hands-on experiments and guided observation. They explore sinking and floating, surface tension, and dissolving at several activity stations.

## Lesson Rationale

Water is fundamental to all life. No living thing can survive without it. Water is a powerful force in our climate and food supply. Students need to be aware of the properties, uses, and limits of this precious resource.

## Teacher's Notes

There are six stations in this activity. Students work in small groups. It is beneficial to set up three stations during the first class period and three stations during the second class period. Adult helpers are suggested. Invite parents in to join you!

## My Notes

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## Key Concept:

Water has very special qualities that make it important for all living things.

## Time Required:

Two 40-minute class periods

Students spend 10-15 min. per station.

Subject Area	Interdisciplinary Connection	Resources	Going Further	NJCCCS
<b>Science</b>	<p>Students will seek answers through observation and experimentation</p> <p>Safety practices during science investigations</p> <p>Students will identify and investigate properties of water including: dissolving, surface tension, density, salinity</p>	See binder for materials list for each station.	Water conservation: Students can chart their uses of water throughout a week. Students should then identify ways that they could conserve water. Students apply these ways in the next week and compare the differences (in writing or discussion).	Standard 5.1 Habits of Mind 5.1A.1 5.1C.1
<b>Language Arts Literacy</b>	<p>Small group discussions</p> <p>Students will use picture and question prompts to brainstorm the importance and uses of water.</p>	<p>Pictures of water-related uses/activities. Question prompts from the binder.</p>	<p><b>Literature Connection:</b> <i>Water</i> by Neil Morris This book provides information about water, looking at its different forms, where it comes from and how it is used.</p> <p><i>The Magic School Bus</i> at the Waterworks by Joanna Cole United Streaming also carries this video online.</p>	Standard 3.3  Speaking 3.3A1 3.3A2 3.3A3 3.3A4
<b>Mathematics</b>			Students can continue experimenting with surface tension and using their one to one counting skills. Give each child a quarter and an eyedropper with water. Students can count the number of drops that a quarter can hold before the surface tension breaks and the “bubble” flows off of the coin. Paper towels should be placed under the coin to catch the flow.	
<b>Social Studies</b>			Students can investigate the types of water transportation that are used to move goods and people. Students can compare water properties, such as sink/float with water's ability to move heavy objects such as a ship or lumber.	
<b>Visual Arts</b>			Students will use water color paints to create a picture of a river, lake, stream, bay or ocean. Kosher sea salt can be applied to the picture when the paint is wet to create an interesting effect.	

Subject Area	Interdisciplinary Connection	Resources	Going Further	NJCCCS
Technology			An online interactive demonstration of the relationship between density (mass and volume) and sink/float <a href="http://ww2.unime.it/weblab/mirror/ExplrSci/dswmedia/density.htm">http://ww2.unime.it/weblab/mirror/ExplrSci/dswmedia/density.htm</a>	
World Language			<b>Literature Connection:</b> <i>Why the tides Ebb and Flow</i> by Joan Chase Bowden This is an adaptation of an African folktale that explains why the tides ebb and flow.	
Career Education & Consumer, Family & Life Skills				
Physical Education			Students can discuss how sink/float affects them when they swim in water in the summer. Students can compare floating with and without an inflatable tube and discuss why rafts and tubes can keep people afloat.	

# SEASHORE CHARADES

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Rocky Seashore (Grade 1)

## Lesson Overview

Students act out the adaptations of organisms at the rocky seashore at high and low tide using the slide show as a prompt.

## Lesson Rationale

Students are actively engaged in a fun way to learn adaptations of organisms at the rocky seashore.

## Teacher's Notes

Seashore Charades Slideshow or pictures of rocky seashore plants and animals are presented before each charade. Allow for student creative expression.

## My Notes

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## Key Concept:

All the animals and plants at the rocky seashore have special ways to survive the crashing waves and changing tides.

## Time Required:

One 40-minute class period

<b>Subject Area</b>	<b>Interdisciplinary Connection</b>	<b>Resources</b>	<b>Going Further</b>	<b>NJCCCS</b>
<b>Science</b>	<p>Seashore Charades key concepts:</p> <p>Organisms have adapted to survive in their habitat.</p> <p>There are different requirements for survival at high vs. low tide. Tidal cycles are evident in this habitat.</p> <p>Organisms are both similar and different in structure (size, shape, color).</p> <p>There are predator/prey (food chain) relationships within this habitat.</p>	<p>Seashore Charades Slide Show and Script.</p> <p>Slide projector</p>	<p>Drenched and Dried: Organisms in this habitat must adapt to changing conditions. Temperature fluctuates, breathing within and without water, and fresh water rain all affect these organisms. Examine how two example organisms (hermit crab and barnacle) adapt to these changes. Students should illustrate how the organism copes with these changes. Students may also write a sentence to describe the adaptations.</p>	<p>Standard 5.1 Habits of Mind 5.1A2</p> <p>Standard 5.5 Organization in Living Systems 5.5A1</p> <p>Standard 5.10 Natural Systems and Interactions 5.10A1</p>
<b>Language Arts Literacy</b>	<p>Class Big Book: Students will chose one animal from the slideshow and draw and write a sentence describing how their animal copes with the dangers at the seashore.</p> <p>High Tide/Low Tide Sorting: Use the large pictures from the "Who Am I" section in the binder to sort high/low tidal zone organisms.</p>	<p>Paper Crayons/Markers pencils Copies of the Rocky Seashore plants and animals from the binder.</p>	<p><b>Literature connection:</b> <i>A House For Hermit Crab</i> by Eric Carle</p> <p><b>Activities:</b> Students will listen to the story A House For Hermit Crab and write 2-5 sentences describing an organism (from the Charades activity) that the hermit crab could use to decorate his/her house.</p>	<p>Standard 3.4 Listening 3.4B1</p> <p>Standard 3.2 Writing 3.2A4 3.2A6 3.2A8</p>

<b>Subject Area</b>	<b>Interdisciplinary Connection</b>	<b>Resources</b>	<b>Going Further</b>	<b>NJCCCS</b>
<b>Mathematics</b>	Students will sort and classify (pictured) objects.	Copies of the Rocky Seashore plants and animals from the binder.	Students will record the times for daily high and low tides. Students will express these times using both a standard and digital clock.	Standard 4.4 Systematic Listing and Counting 4.4 C1
<b>Social Studies</b>			Students can relate the Rocky Seashore organism's adaptations to our own adaptations as the seasons change. Students can use illustrations or sentences to describe how humans adapt to changing conditions in our environment.	
<b>Visual Arts</b>	Charades: follow the script in binder. Students dramatize the organisms. Allow for creative expression.	Seashore charades script	Assign each student to one plant or animal from the Charades script. Each student will create a diorama showing that organism and its habitat (high or low tide). Students can be guided to include a simplified report indicating the organism's name, adaptation, description, and tide depicted in the diorama. This project is an excellent home extension for families to do together.	Standard 1.2 Theater 1.2C1 1.2C2
<b>Technology</b>			<p>PBS sponsored virtual tide pool  <a href="http://www.pbs.org/wnet/nature/edgeofsea/tidepool.html">http://www.pbs.org/wnet/nature/edgeofsea/tidepool.html</a></p> <p>Explore a coral reef with Nemo, online interactive games, puzzles.  <a href="http://oceanfutures.org/spongebob/index2.html">http://oceanfutures.org/spongebob/index2.html</a></p> <p>Simplified illustration of why we have high/low tides  <a href="http://www.mos.org/oceans/motion/tides.html">http://www.mos.org/oceans/motion/tides.html</a></p> <p>Tide pool south of San Francisco with great photos at high/low tide.  <a href="http://www.sfgate.com/getoutside/1996/jun/lzone.html">http://www.sfgate.com/getoutside/1996/jun/lzone.html</a></p>	
<b>World Language</b>			Students can learn the words for "sand" or "beach" in another language. For example, "arena" and "playa" in Spanish. Students can use this vocabulary to make signs for their Rocky Seashore habitat display.	
<b>Career Education &amp; Consumer, Family &amp; Life</b>			Coping with change is a valuable life skill. Students can discuss how they adapt to changes in their daily lives. Students can also discuss how our emotions are often triggered by change that we encounter.	

Subject Area	Interdisciplinary Connection	Resources	Going Further	NJCCCS
Skills				
Physical Education			<p><b>Anemone obstacles:</b>  Students can use props (such as swimming pool noodles=Anemones) to portray organisms from the Rocky Seashore or Tide pool. Other students can use movement such as running/skipping/jumping to portray fish species who need to swim within (but avoid the sting) of the anemones.</p> <p><b>Sea horse race:</b>  The object of the race is to have one student represent the head of the sea horse and one student represent the tail. The noodle is the body. The head of the sea horse stands and the tail sits on the scooter. The noodle is held by both of the students (head and the tail). On command the head of the sea horse runs to the turning point in the gym. The tail holds onto the noodle and moves with the head. This is a fun relay and the students really seem to enjoy the game.</p> <p>For more information from MARE Veteran Rob Causton:  <a href="http://www.warrenet.org/oxford/causton/">http://www.warrenet.org/oxford/causton/</a></p>	

# TROUBLE AT THE TIDEPOOLS

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Rocky Seashore (Grade 1)

## Lesson Overview

Students will make a field trip guide that includes safety information, the best time to visit, what to look for, and what students are permitted to take home with them. This guide can be used on a real or virtual field trip or when viewing their own rocky seashore display.

## Lesson Rationale

Many human activities harm seashore plants and animals. This lesson will guide your students to preserve our marine environment while enjoying it!

## Teacher's Notes

This lesson uses small cooperative learning groups. It is helpful to complete your Rocky Seashore 3D display prior to the start of this lesson.

## My Notes

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## Key Concept:

People visiting the rocky seashore need to follow special rules for their own safety, and for the safety of the plants and animals living there.

## Time Required:

One 40-minute class period

Subject Area	Interdisciplinary Connection	Resources	Going Further	NJCCCS
<b>Science</b>	Scientists make careful observations Safety is necessary for science investigations Organism’s basic needs are met within their habitat. We must show Respect for wildlife and habitats.	Drawing paper Crayons/markers Pencils Litter (plastic six pack rings, fishing line, paper, Styrofoam)	Organize a Beach clean up: Invite parents and students to meet after school hours to clean up a marine habitat in your area. Many public works departments will support you with supplies. (Ask for the use of “Orangutongs” to pick up litter).	Standard 5.1 Habits of Mind 5.1A.1  Standard 5.1 Safety 5.1C.2  Standard 5.10 Natural Systems and Interactions 5.10 A.1
<b>Language Arts Literacy</b>	Students will design a field guide for a trip to the seashore. Students will work in small groups to write sentences and illustrate responses to prompts printed in the binder lesson.	Drawing paper Crayons/markers Pencils Litter (plastic six pack rings, fishing line, paper, Styrofoam)	<b>Literature connections:</b> <i>An Island Scrapbook</i> by Virginia Wright-Frierson (Aladdin Paperbacks Pub.)  <b>Activities:</b> Students will listen to the story <i>An Island Scrapbook</i> and write a (group) letter to a local beach governing authority or newspaper describing the need for dune grass and dune preservation signs. Students can offer to paint the signs using donated wood.	Standard 3.2 Writing as a Process 3.2A4 3.2A1 3.2 A6  Standard 3.2 Writing as a Product 3.2B1
<b>Mathematics</b>				
<b>Social Studies</b>			Students can locate barrier islands and coastal beaches on their state map. Students can research local and state rules/laws governing beach habitats. Students can collect "six pack plastic rings" for recycling. ITW Hi-Cone	

<b>Subject Area</b>	<b>Interdisciplinary Connection</b>	<b>Resources</b>	<b>Going Further</b>	<b>NJCCCS</b>
			Attn: Recycling Dept. 1140 W. Bryn Mawr Ave. Itasca, IL 60143-9918	
<b>Visual Arts</b>			Students can paint signs for dune preservation for use at their local beach habitat.	
<b>Technology</b>			Photographs and short descriptions of beach pollution <a href="http://seawifs.gsfc.nasa.gov/OCEAN_PLANET/...HTML/peril_marine_debris.html">http://seawifs.gsfc.nasa.gov/OCEAN_PLANET/...HTML/peril_marine_debris.html</a>  Visit an estuary and find out how pollution affects it. <a href="http://www.epa.gov/owow/estuaries/kids/index.htm">http://www.epa.gov/owow/estuaries/kids/index.htm</a>	
<b>World Language</b>				
<b>Career Education &amp; Consumer, Family &amp; Life Skills</b>			Students can investigate careers such as: coast guard, lifeguard, fish & game officer, etc. that involve patrolling the coastal habitat and enforcing local laws.	
<b>Physical Education</b>			Students can discuss how sink/float affects them when they swim in water in the summer. Students can compare floating with and without a inflatable tube and discuss why rafts and tubes can keep people afloat.	