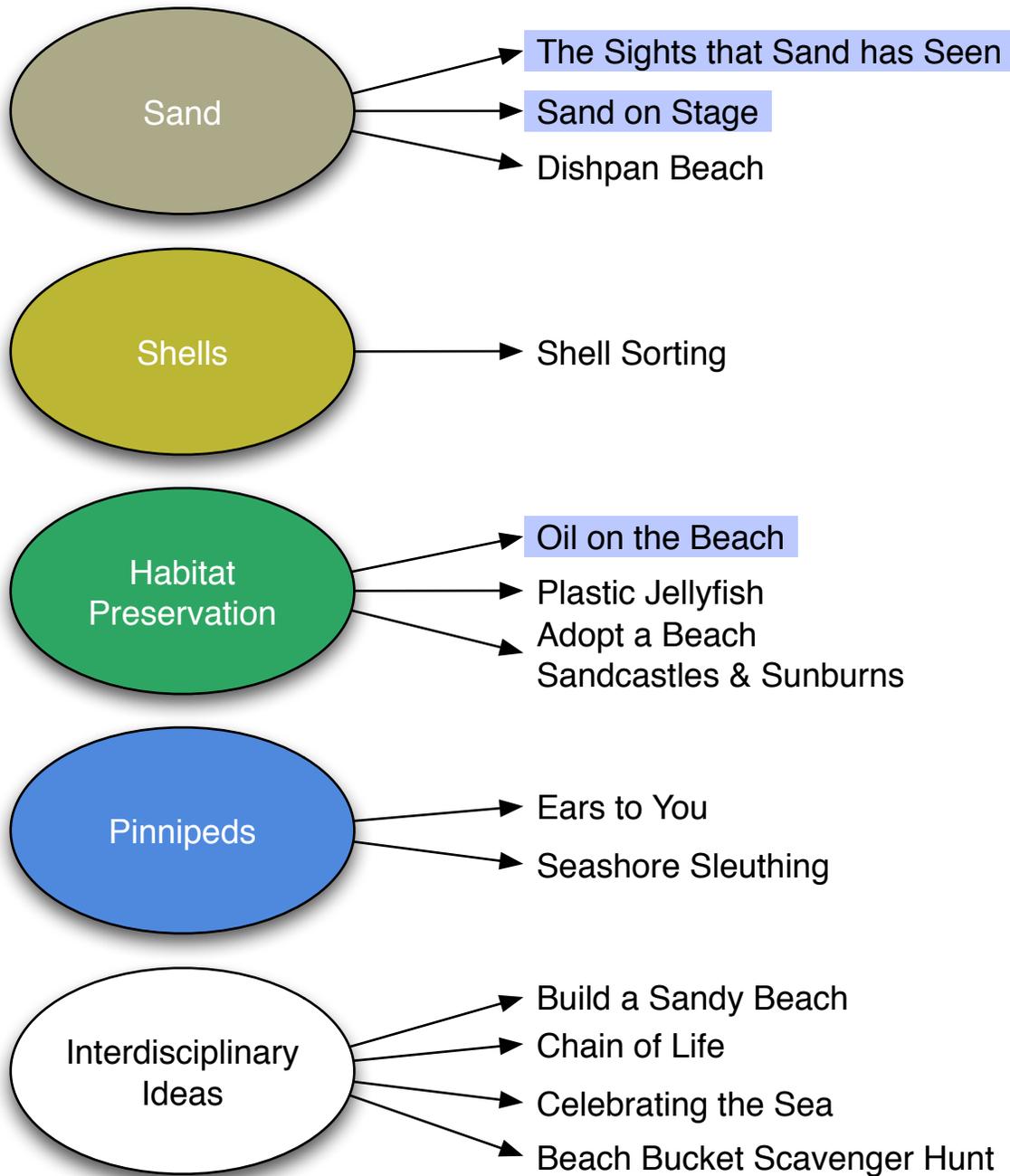


# SANDY BEACH

Grade 2

## CONCEPT MAP



Highlighted text denotes recommended first year lessons

## The Sandy Beach Flow Chart

(Blue title indicates lessons to start within Year 1)  
A class period =40 minutes

### The Sights That Sand Has Seen

Story & Writing  
1 Class period



### Beach Bucket Scavenger Hunt

Hands on Discovery  
1 Class period



### Sand On Stage

Hands on lab  
1 Class period



### Dishpan Beach

Story & Hands on  
4 Class periods



### Shell Sorting

Hands on  
2 Class periods



### Build A Sandy Beach

ongoing

Please go to the next page



### Chain of Life

Role play  
1 Class period



### Oil on the Beach

Simulation  
2 Class periods



### Plastic Jellyfish

Survey/Home project  
1 Class period



### Adopt A Beach Sandcastles & Sunburns

Visual Art  
1 Class period



### Ears To You

Research & game  
2 Class periods



### Celebrating The Sea

Poetry  
1 Class period

# THE SIGHTS THAT SAND HAS SEEN

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Sandy Beach (Grade 2)

## Lesson Overview

Students listen to a story about the evolutionary journey of a sand grain from high on a mountain to the top of a sand castle on a beach. They then work in small groups to write and illustrate a series of “post cards” to re-tell the story. Students then play a game show using the post cards.

## Lesson Rationale

In order to understand the Sandy Beach habitat, students need to know how sand is created and how the ocean’s currents move that sand over time.

## Teacher’s Notes

The story is presented without pictures. Once this lesson is completed, keep the post cards to use as visual aides when telling the story in the future.

## My Notes

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### Key Concept:

Sand is created by erosion, and can be transported long distances by streams, rivers and ocean currents. Erosion is the gradual wearing away of objects by glaciers, water, wind or waves. Waves and currents constantly move sand on and offshore and along the coastline to form beaches which change with the seasons.

### Time Required:

One 40-minute class period

Subject Area	Interdisciplinary Connection	Resources	Going Further	NJCCCS
<p><b>Science</b></p>	<p>Sand is created by erosion (glaciers, water, wind, wave erosion)</p> <p>Sand is transported by streams, rivers and ocean currents.</p> <p>Our coastline is constantly changing.</p>	<p><i>Sandy's Journey To the Sea</i> story (in binder). Example postcards 4X6 index cards Crayons/markers pencils</p>	<p>Students can further experiment with the movement of sand by ice and wind. Freeze small quantities of sand in ice cube trays with water. Allow the students to observe the frozen (mock glacier) and to transport it to a new area (outside). Observe melting and record observations in writing. Use straws (mock wind) to blow sand grains and observe the rippled patterns wind often makes on sand surfaces. Discuss how wind moves sand within your school environment (playground, sidewalks, etc.).</p>	<p>Standard 5.8 Earth's Properties and Materials 5.8 A1</p>
<p><b>Language Arts Literacy</b></p>	<p>My Buddy Says: Students practice active listening using prompts listed in the binder in the Sights that Sand has Seen section.</p> <p>Postcards: Students will write a description of where Sandy is located at a chosen point in her journey, what she is seeing, and how she is feeling.</p>	<p>Prompts listed in the binder.</p> <p>Index cards Crayons/markers Pencils</p>	<p>Students can write a simplified (non-rhyming) poem including an "-ing" action verb and the place/location where the sand grain is located (i.e., rolling down a mountainside, bouncing along a riverbed) Each student's writing can be combined into a class poem titled, <i>Sandy's Journey</i>.</p>	<p>Standard 3.4 Active Listening 3.4 A1 3.4 B1 3.4 B2</p> <p>Standard 3.3 Questioning 3.3 B1 3.3 B2 3.3 B3</p> <p>Standard 3.2 Writing as a Process 3.2 A4 3.2 A6 3.2 B1</p>
<p><b>Mathematics</b></p>				

<b>Subject Area</b>	<b>Interdisciplinary Connection</b>	<b>Resources</b>	<b>Going Further</b>	<b>NJCCCS</b>
<b>Social Studies</b>			Students can investigate how the Native American sand paintings were used by medicine men for healing in the Navajo tribes. Students can research the Navajo location, beliefs, and way of life.	
<b>Visual Arts</b>	The Seasons of a Beach: Students will use creative movement/dramatics to act out waves, sand and shore birds.	Student's jackets	Navajo Native Americans used sand in beautiful art pieces. Students can use colored sand and glue to get the same effect. See this example: <a href="http://www.makingfriends.com/na/sandart_native_american.htm">http://www.makingfriends.com/na/sandart_native_american.htm</a>	Standard 1.2 Theater 1.2 C2
<b>Technology</b>			Student friendly description of erosion <a href="http://www.geography4kids.com/files/land_erosion.html">http://www.geography4kids.com/files/land_erosion.html</a>  Dirtmeisters: a guided Science Report on erosion <a href="http://teacher.scholastic.com/dirtrep/erosion/invest.htm">http://teacher.scholastic.com/dirtrep/erosion/invest.htm</a>	
<b>World Language</b>				
<b>Career Education &amp; Consumer, Family &amp; Life Skills</b>				
<b>Physical Education</b>			Sandy's Journey Obstacle Course: Students can role play Sandy's journey as they move through an obstacle course. Mats piled high can be mountains, scooters can be flowing water in a river, jump ropes can be bouncy falls down a slope, etc.	

# SAND ON STAGE

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Sandy Beach (Grade 2)

## Lesson Overview

Students investigate the properties of sand through the use of magnifiers, microscopes and guided observation.

## Lesson Rationale

Sand is important to people and wildlife.

It creates beautiful beaches, homes for many plants and animals, and is an essential building block for many things we use from glass to concrete.

## Teacher's Notes

Sand samples are needed prior to this lesson.

Request that any families, friends, or staff members, who will be traveling to a sandy beach, bring back a small zip lock bag of sand. Students can also write letters to family members who live near a sandy location and ask for samples to be mailed.

## My Notes

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### Key Concept:

Sand grains can be made of animals, plants, rocks or minerals. They come in many different shapes, sizes and colors. These differences can be clues about the origin and evolution of the sand.

### Time Required:

One 40-minute class period

Subject Area	Interdisciplinary Connection	Resources	Going Further	NJCCCS
<b>Science</b>	<p>Students keep records that describe their observations.</p> <p>Sand has scale and structure (size, shape, color).</p> <p>The scale and structure of a sand sample provide clues to its origin. Sand grains can be made of animals, plants, rocks or minerals.</p>	<p>Sand samples Hand lenses or magnifiers Microscopes Sand table (if available) or substitute a plastic tub filled with sand.</p>	<p>This key concept will be revisited in the sixth grade MARE program. If available, encourage the sixth graders to team up with your students and share knowledge. Students can prepare a sand display to be shown on Family Night during Ocean Week, with samples, labels, and geographic locations noted on a map.</p>	<p>Standard 5.1 Habits of Mind 5.1A.2</p> <p>Standard 5.5 Characteristics of Life 5.5 A2</p> <p>Standard 5.6 Structure and Property of Matter 5.6 A1 5.6A2</p> <p>Standard 5.8 Earth's Properties and Materials 5.8A1</p>
<b>Language Arts Literacy</b>	<p>Partner parade: (see binder) Students discuss a question prompted by the teacher, in pairs and report their partner's response to the class.</p>	<p>Question prompts given in the binder in the Sand on Stage section.</p>	<p><b>Literature connection:</b> <i>Sand</i> by Ellen Prager (National Geographic Society Pub.)</p> <p><b>Activities:</b> Students will listen to the story Sand and write 2-5 sentences describing a fact that they learned about sand. Students can illustrate their fact or paint a picture with tempera paint mixed with a small amount of sand to create texture.</p>	<p>Standard 3.3 Questioning 3.3 B1 3.3 B2 3.3B3</p> <p>Standard 3.3 Discussion 3.3A2 3.3A3 3.3A4</p>
<b>Mathematics</b>			<p>Particles are considered sand when they are between .06-2 mm. Students will identify mm. on a cm. ruler and discuss how a mm. can be further divided into tenths.</p>	

Subject Area	Interdisciplinary Connection	Resources	Going Further	NJCCCS
<b>Social Studies</b>			<p>Sand samples are obtained by contacting student's relatives and requesting a sample to be sent through the mail. Request a short description of the area. Students can also contribute sand samples from family vacations. Students will plot the location of samples on a world/USA map. Students will describe the physical features of each region.</p> <p>Students can investigate some of the many products made from sand and soil. Concrete, glass, and bricks are examples. Use FOSS Science interactive site to investigate:</p> <p><a href="http://www.fossweb.com/modulesK-2/PebblesSandandSilt/">http://www.fossweb.com/modulesK-2/PebblesSandandSilt/</a> (Click Find Earth Materials)</p>	
<b>Visual Arts</b>			<p>Navajo Native Americans used sand in beautiful art pieces. Students can use colored sand and glue to get the same effect. See this example: <a href="http://www.makingfriends.com/na/sandart_native_american.htm">http://www.makingfriends.com/na/sandart_native_american.htm</a></p> <p>Student can also create sand paintings of local beach habitats using sand and glue. See this example: <a href="http://crafts.kaboose.com/sand-art.html">http://crafts.kaboose.com/sand-art.html</a></p>	
<b>Technology</b>			<p>Sand facts <a href="http://www.ed.uri.edu/homepage/projects/ocean/SandFacts.htm">http://www.ed.uri.edu/homepage/projects/ocean/SandFacts.htm</a></p> <p>Highly magnified pictures and descriptions of sand from around the world. <a href="http://www.ed.uri.edu/homepage/projects/ocean/Sampler.htm">http://www.ed.uri.edu/homepage/projects/ocean/Sampler.htm</a></p> <p>Sand castle contest pictures. <a href="http://www.sandcastlecentral.com/contests/hampton02web/">http://www.sandcastlecentral.com/contests/hampton02web/</a></p> <p>Online sand art interactive <a href="http://hicards.com/games/sand.html">http://hicards.com/games/sand.html</a></p>	

<b>Subject Area</b>	<b>Interdisciplinary Connection</b>	<b>Resources</b>	<b>Going Further</b>	<b>NJCCCS</b>
<b>World Language</b>			<p>Students can view and locate some of the world's most famous beaches (Bora Bora, Cancun, Oahu, etc.) You can take a virtual trip to one of these beaches through the Internet. Always preview the sites first, due to the possibility that a Nude Beach could pop up!</p> <p>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 Sandy Beach habitat display.</p>	
<b>Career Education &amp; Consumer, Family &amp; Life Skills</b>			<p>Students can learn how sand is made into glass. Take a field trip to Wheaton Village Glassworks. <a href="http://www.wheatonvillage.org/">http://www.wheatonvillage.org/</a></p>	
<b>Physical Education</b>			<p>Beach Bucket brigade: Students can have relay races where each team must carry a shovelful of sand to place in a beach bucket.</p>	

# OIL ON THE BEACH

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Sandy Beach (Grade 2)

## Lesson Overview

Students learn where oil comes from, the many ways people use oil, and how and why we should conserve it. They help make a classroom sandy beach and observe how it is affected by simulated tidal changes as oil spilled offshore washes onto the beach. Students then work in small groups using a variety of methods to attempt to clean up an oil spill.

## Lesson Rationale

The United States uses more oil per person than anywhere in the world. The greatest source of oil pollution comes from small drops of oil that has leaked from cars onto streets and then is carried by rain to the ocean.

## Teacher's Notes

Do NOT use real motor oil. Follow the recipe for simulated (biodegradable) oil in the binder. Sand can be purchased if necessary (Sand box sand).

### Session 1

Step 1: Oil on the Beach

Step 2: Cleaning the Beach and Debriefing the results

### Session 2

Step 3: Fouled Feathers

Step 4: Mini Book

## My Notes

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### Key Concept:

Oil spilled at sea can travel with currents, tides and waves to the sandy beach where it can harm the animals that live there. Oil spills are almost impossible to clean up and we can help to prevent them by conserving our use of oil.

### Time Required:

Two 40 minute class periods

Subject Area	Interdisciplinary Connection	Resources	Going Further	NJCCCS
<p><b>Science</b></p>	<p>Students will seek answers through observation and experimentation</p> <p>Safety practices during science investigations</p> <p>Describe the effect of human activities on various ecosystems.</p>	<p>Vegetable oil Black Tempera paint 6 Small squeeze bottles Feathers 6 small bowls Magnifying lenses Plastic dishpan Sand Water Pencil, paper Cotton ball, hay/straw, fake fur, nylon stocking, sand/kitty litter Oil on the Beach data sheets</p>	<p>Students can investigate how oil affects birds. The oil affects the bird's ability to waterproof its feathers and its ability to maintain its body temperature. Humans have found ways to clean wildlife caught in oil spill disasters. Check out the pictures on this website to get the conversation started: <a href="http://www.ibrrc.org/oil_affects.html">http://www.ibrrc.org/oil_affects.html</a></p>	<p>Standard 5.1 Habits of Mind 5.1A.1 5.1C.1</p> <p>Standard 5.1 Safety 5.1 C1 5.1 C2</p> <p>Standard 5.10 Natural Systems and Interactions 5.10 B1 5.10 A1</p>
<p><b>Language Arts Literacy</b></p>	<p>Family interview: Students will interview their family members regarding oil use and pollution.</p> <p>Partner Parade: Students will respond (verbally) to a question prompt asked by a peer. Students will restate their partner's response.</p> <p>KWL chart regarding oil.</p> <p>My Buddy Says: Students will respond to a question prompt. Peers will restate their partner's response.</p>	<p>Question prompts from the binder. (In the Oil on the Beach section)</p> <p>Chart paper</p> <p>Procedures for: Partner Parade &amp; My Buddy Says (In Teaching Strategies section of the binder)</p>	<p><b>Literature Connection:</b> <i>The Wump World</i> by Bill Peet</p> <p>Students can relate the events in this fictional story to pollution and its effect on our environment. Students can respond with illustrations or sentences describing ways to stop pollution.</p>	<p>Standard 3.3 Speaking 3.3A1 3.3A2 3.3A3 3.3A4</p> <p>Standard 3.4 Active Listening 3.4 A1 3.4 B1 3.4 B2</p> <p>Standard 3.3 Questioning 3.3 B1 3.3 B2 3.3 B3</p>

<b>Subject Area</b>	<b>Interdisciplinary Connection</b>	<b>Resources</b>	<b>Going Further</b>	<b>NJCCCS</b>
<b>Mathematics</b>				
<b>Social Studies</b>	Students discuss the impact of oil pollution on the habitat and its wildlife.		Students will use information sources such as newspapers, TV and the Internet to investigate oil spills. (See technology below). Locate the top ten catastrophic spills on a world map.	Standard 6.6 Environment and Society 6.6 E3
<b>Visual Arts</b>			Students can build a 3D model of a watershed community. Students can design the model so all streets and rivers drain to a body of water (i.e., the bay). Water and mock oil can be added to illustrate how storm drain and street level pollution lands in our bays.	
<b>Technology</b>			<a href="http://response.restoration.noaa.gov/">http://response.restoration.noaa.gov/</a> NOAA's emergency response to oil spills. Excellent pics of the Exxon Valdez 1989 spill.	
<b>World Language</b>				
<b>Career Education &amp; Consumer, Family &amp; Life Skills</b>			Many watershed communities have storm drain labeling programs. Storm drains are labeled with permanent signs declaring "Only Rain In The Drain, Drains To The Bay." Have your class team up with local public works employees to label the drains in your town.	
<b>Physical Education</b>				