

LESSON 1
**Water, Water
Everywhere**

How is water important to the animals that make
their homes in the pond?
What kind of homes do the animals in a pond habitat make?

LESSON 2
Pond Homes

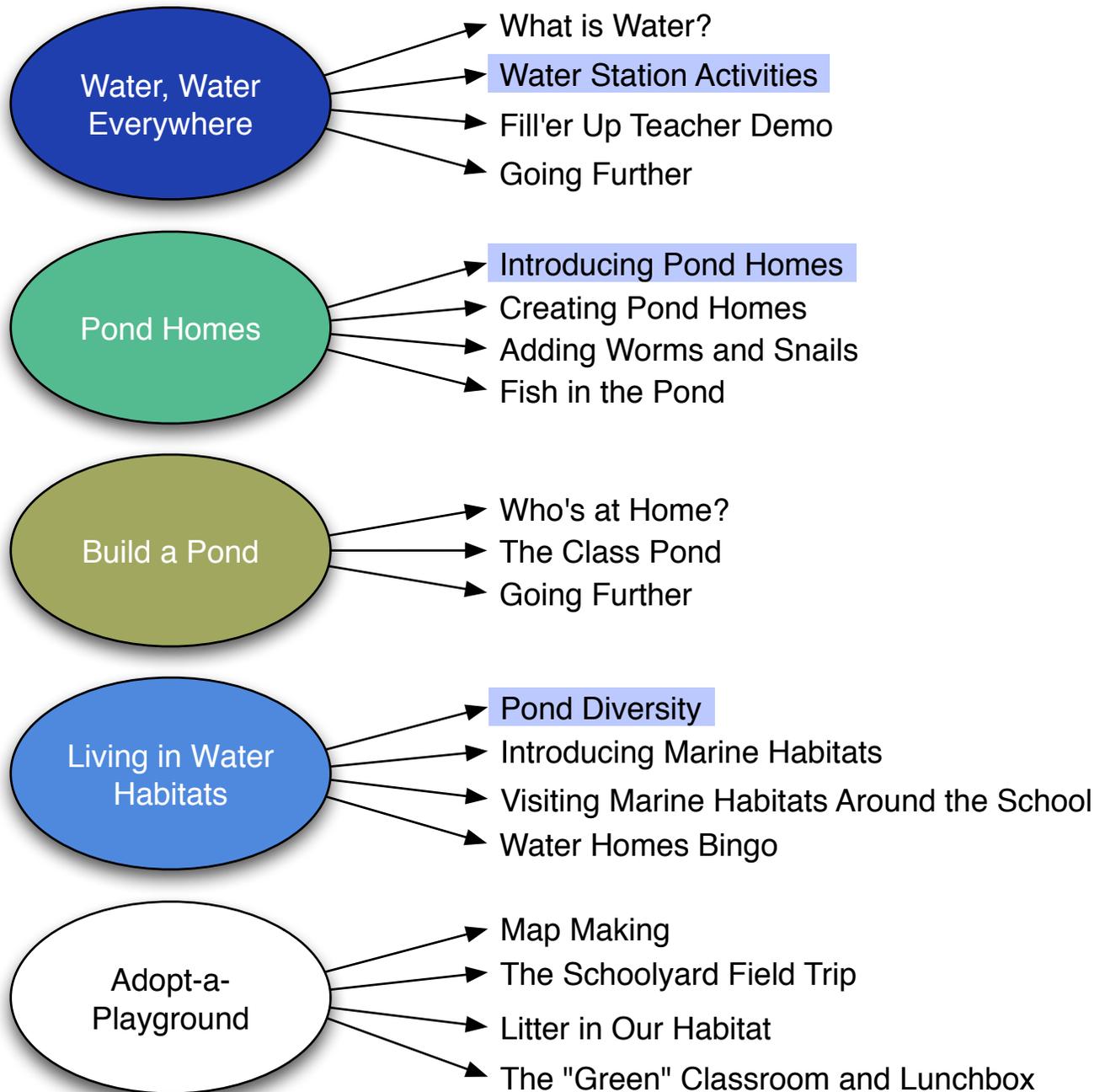
What kinds of animals and plants could you expect to
find in an ocean habitat?
How are pond and ocean habitats similar and different?

LESSON 3
Living in Water Habitats

PONDS

Kindergarden

CONCEPT MAP

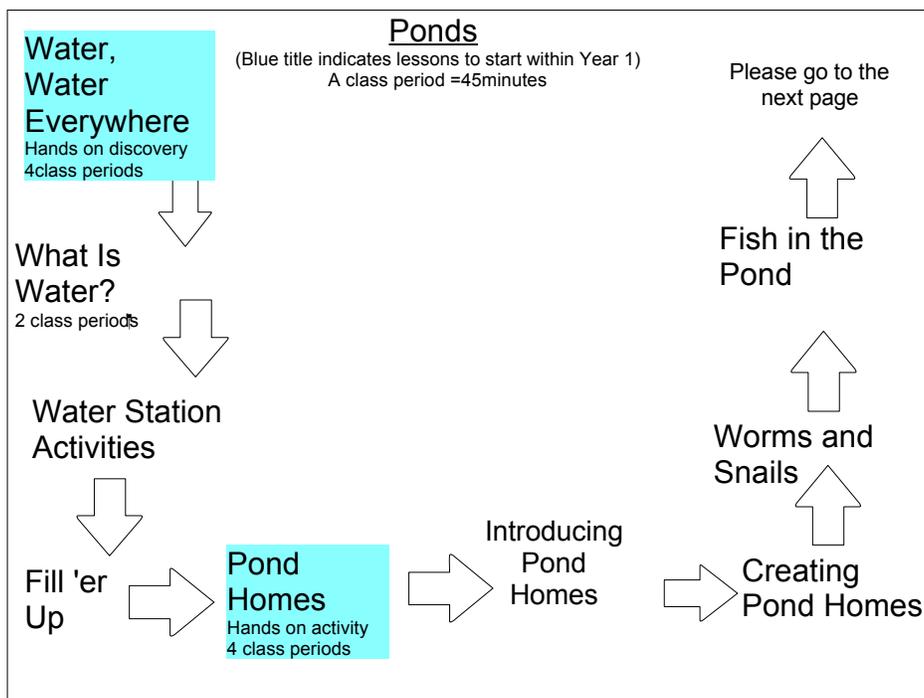


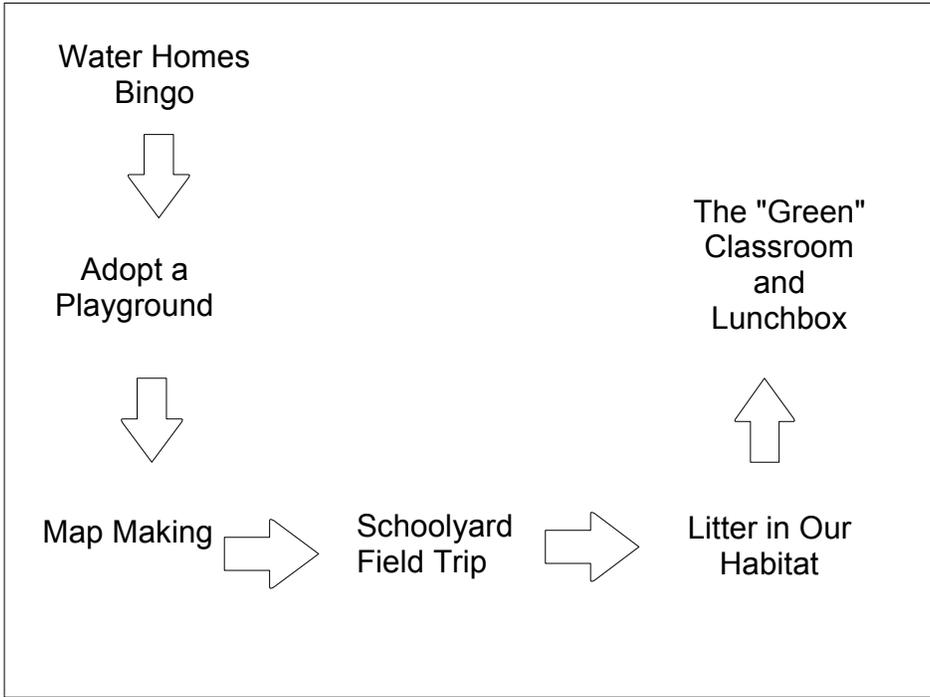
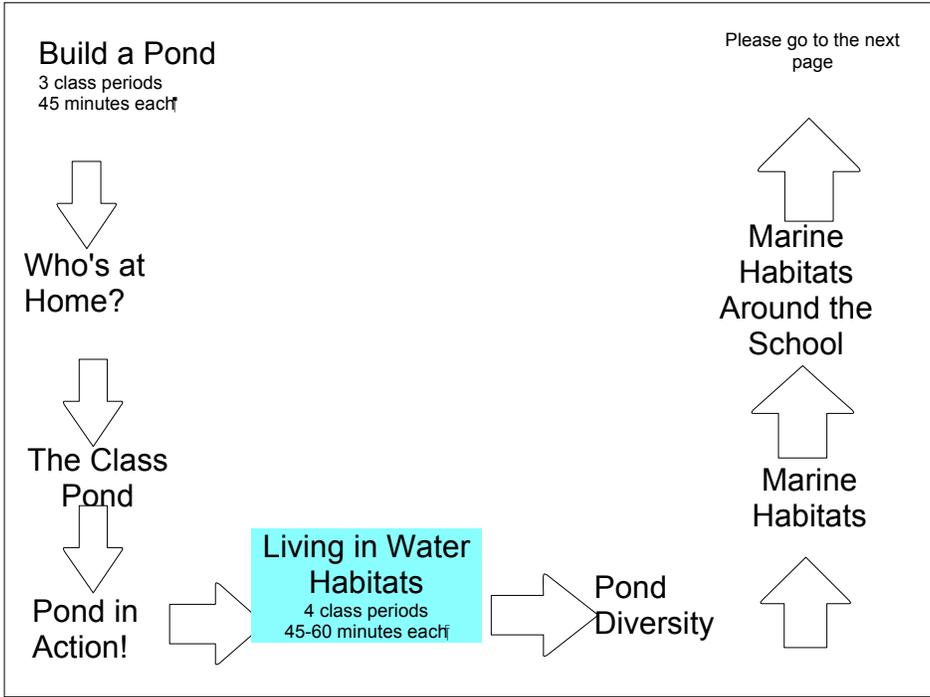
Highlighted text denotes recommended first year lessons

Ponds

Kindergarten MARE

Flow Chart





WATER, WATER EVERYWHERE

Ponds (Kindergarten)

Lesson Overview

Students brainstorm and explore the importance of water while rotating in 3 activity stations.

- Sink or Float?
- Boat Building
- Water Drops

Lesson Rationale

Exposing young students to our “Blue Planet” and discovering the properties that makes water unique and interesting.

Teacher’s Notes

Students work in small groups stations under teacher direction to predict outcomes.

My Notes

Key Concept:

Water is a very important liquid for every living thing.

Time Required:

4 class periods of approximately 60 minutes each

Subject Area	Interdisciplinary Connection	Resources	Going Further	NJCCCS
Science	<ul style="list-style-type: none"> Water is a very important and interesting liquid. Scientists make careful observations before using their five senses. Some materials tend to float, other materials tend to sink. Whether or not something sinks or floats depends on the material, not the size of the object. We can make predictions and then measure the amount of water that different shapes will hold. 	Pond Teacher's Guide Chart paper Markers Materials in binder for water stations		STANDARD 5.1 (Scientific Processes) 5.1.A.1 STANDARD 5.3 (Mathematical Applications) 5.3.A.1 5.3.D1 STANDARD 5.8 (Earth Science) 5.8.B.1. STANDARD 5.10 (Environmental Studies) 5.10.A.1
Language Arts Literacy	Students brainstorm sentences for "Water Is..." Students will choose their favorite sentence, write it and then illustrate it for bulletin board or class book.	Chart paper Markers Paper	Guided Reading: <i>Where Is Water?</i> -Level B <i>Senses</i> - Level D <i>Does It Sink or Float?</i> –Level F <i>Earth's Water</i> - Level H (Materials provided) Poems – Water Cycle, Water Literature Connection <i>Water</i> - Neil Morris Thameside Press, 2001 (Provides information about water, its different forms, how it is used, includes activities.) Read aloud for the class, and then create a water cycle flow chart.	STANDARD 3.1 (Reading) 3.1.A.5 3.1.C.1 3.1.E.5 STANDARD 3.2 (Writing) 3.2.A.1 3.2.A.2 3.2.A.4 3.2.B.1 3.2.D.1
Mathematics	Students will graph number of students able to float certain numbers of pennies in the boat building station.	Markers Large graph paper	Students can keep track of the weather each day. Make weekly and monthly graphs.	STANDARD 4.1 Numerical Operations 4.1.A.3 4.1.B1

Subject Area	Interdisciplinary Connection	Resources	Going Further	NJCCCS
				STANDARD 4.4 Data Analysis 4.4.A.1 4.4.A.2
Social Studies	Students will look at local and regional maps to find lakes, streams, rivers, etc.	Wall maps Globes		STANDARD 6.6. The World in Spatial Terms 6.6.A.1, A.2, C.1, E.1
Visual Arts	Using old magazines, create a water collage that illustrates the different ways water is used by living and non-living things	Magazines Paper Glue	Songs – Five Senses, Rain Create posters about seasonal precipitation.	STANDARD 1.2 (Creation and Performance) 1.2.D.1
Technology	http://ga.water.usgs.gov/edu/index.html		Pond coloring book http://www.eibspond.com/ Thirsten’s Water cycle animated activity, book http://www.epa.gov/safewater/kids/kids_k-3.html	
World Language			Children can discuss how different people around the world collect drinking water.	
Career Education & Consumer, Family & Life Skills				
Physical Education			Students can act out the water cycle. Start on the ground as a puddle, and then begin standing as they evaporate. As they gather together in groups of two, then three and four, they are condensing in the clouds. Finally they use their arms and fingers as precipitation falling back to earth.	

POND HOMES

Ponds (Kindergarten)

Lesson Overview

Students work together to build desktop ponds as they learn about habitats and adaptations.

Lesson Rationale

The accessibility of ponds makes them a great habitat to explore with students. Students realize that ponds are filled with interesting organisms.

Teacher's Notes

Students listen to a teacher directed story about ponds and then work in small groups to find evidence about pond life. Students work in groups to create pond homes.

My Notes

Key Concept:

An animal's habitat is where it lives. The habitat has everything that the animal needs to survive. Animals make adaptations to help them survive in their habitat.

Time Required:

4 class periods
about 45 minutes
each

Subject Area	Interdisciplinary Connection	Resources	Going Further	NJCCCS
Science	<ul style="list-style-type: none"> The neighborhood where an animal lives is called a habitat and has everything an animal needs to survive. An animal’s habitat must provide food, water, shelter, and space. Our desktop ponds are models for real ponds. Scientists create models of organisms and habitats so that they can learn more about them. It is important to write down observations using words and drawings so we can tell others what we have discovered. Animals have special parts or ways of acting that help them to survive in their habitat. These are called adaptations. 	Books about ponds Chart paper Markers Aquarium Pond muck and water Gravel Microscopes Hand lenses	Visit local ponds during the seasons. Create journal entries for the changes noted for the season. Purchase tadpoles for pond homes. (Check local nurseries or science catalogues.)	STANDARD 5.1 (Scientific Processes) 5.1.A.1 5.1.A.2 STANDARD 5.5 (Characteristics of Life) 5.5.A.1 5.5.A.2 STANDARD 5.10 (Environmental Studies) 5.10.A.1
Language Arts Literacy	Writing: Modeled writing-make a chart about Pond homes. Habitat Health Rules chart. Science journals	Chart paper Markers Journals or sheets of paper with construction paper covers	Guided Reading: <i>Pond Animals</i> -Level A <i>Pond Life</i> - Level B <i>The Busy Pond</i> –Level D <i>Frog Is Hungry</i> - Level D (Materials provided) Poems – River, Save Our Animals Literature Connection: <i>In the Small, Small Pond</i> by Denise Fleming Use prior to building pond homes. Students can choose the animal they like and then write a sentence and illustrate a picture for a class big book. Writing: Students can dictate or write a story from the viewpoint of any organism that lives in a pond.	STANDARD 3.1 (Reading) 3.1.C.1, D.1, F.1, H.2 STANDARD 3.2 (Writing) 3.2.A.1, A.4, B.1 STANDARD 3.3 (Speaking) 3.3.A.1, B.1 STANDARD 3.4 (Listening) 3.4.A.1

Subject Area	Interdisciplinary Connection	Resources	Going Further	NJCCCS
Mathematics			Create a graph monitoring the fish population in the pond habitats. Repeat weekly. Estimate how many worms are in the sand and gravel each day	
Social Studies				
Visual Arts	Create pond home drawings.		Students can illustrate the key concepts of the lessons. Create paper plate frogs, using paint and pipe cleaners. Create lily pad for the frogs using construction paper and tissue paper.	STANDARD 1.2 (Creation and Performance) 1.2.D.1, D.3
Technology	Pond Video http://allaboutfrogs.org/frog1nd.shtml http://www.wen.org/utahlink/pond http://www.frogweb.gov/adopt.html		http://www.yvw.com.au/waterschool/juniors.html This is an interactive habitat with information on pond plants and animals. http://www.mbgnet.net/fresh/lakes/index.htm Watch the aquatic critters slide show on this site. http://www.enchantedlearning.com/biomes/pond/pondlife.shtml	STANDARD 9.2 (Consumer, Family, and Life Skills) 9.2.C.1, C.2, C.3, C.4, C.6
World Language				
Career Education & Consumer, Family & Life Skills				
Physical Education			Leapfrog relay races Turtle Hurdles: The object of the lesson is to imitate the movements of turtles by lying on a scooter and using their hands and feet as flippers. Hurdles, using cones and hockey sticks, can be used for the students to go under (since turtles can't jump). For more information see Rob Causton's website. He is a MARE Educator http://www.warrenet.org/oxford/causton/	

LIVING IN WATER HABITATS

Ponds (Kindergarten)

Lesson Overview

Students observe their living ponds and are introduced to the words algae and organism. They also learn that the ocean is made up of many different habitats.

Lesson Rationale

Students will gain a better understanding of the diversity of organisms in pond and ocean habitats.

Teacher's Notes

Teacher guided for Pond Diversity and Introducing Marine Habitats. Students work in small groups to compare organisms in fresh water ponds and saltwater homes. Students then visit other classrooms to gather more information about saltwater habitat organisms.

My Notes

Key Concept:

There are many types of living organisms, plants and animals that live in water habitats.

Time Required:

4 sessions of about 60 minutes each

Subject Area	Interdisciplinary Connection	Resources	Going Further	NJCCCS
Science	<ul style="list-style-type: none"> Living things are called organisms. Organisms can be animals, plants, or living things that look like plants. Plant-like organisms are called algae. The water in ponds is fresh water. Many different organisms live in fresh water. Some animals live in fresh water and some animals live in salt water. The water in the ocean is salty. There are many different habitats in the ocean. Different kinds of organisms live in different ocean habitats. 	Chart paper Markers Sentence strips Pond/ocean pictures Pond/ocean books Illustrations of the five different habitats <ul style="list-style-type: none"> Rocky seashore Sandy beach Wetlands Kelp forest Open ocean Marine/Pond organism illustrations Bingo boards Markers	Students color and cut out black-line drawings of pond and ocean organisms. Attach the drawings to magnets and have the students sort according to habitat.	STANDARD 5.1 (SCIENTIFIC PROCESSES) 5.1.A.1 5.1.B.1 5.1.C.1 STANDARD 5.10 (ENVIRONMENTAL STUDIES) 5.5.A.1 5.5.B.1
Language Arts Literacy	<ul style="list-style-type: none"> Compile a KWL chart for Pond/Ocean. New vocabulary-organism, algae, habitat Students will think, pair, and share differences between 	Chart paper Markers Sentence strips	Guided Reading: <i>Life in the Pond</i> -Level I <i>Land and Water</i> -Level I <i>Shapes in the Tide-Pool</i> -Level E <i>In the Sea</i> -Level E (Materials provided) Literature Connection: <i>Lottie's New Beach Towel</i> by Petra Mathers (1998) Read aloud to the students.	STANDARD 3.1 (Reading) 3.1.C.1 3.1.D.1 3.1.F.1 3.1.F.2 STANDARD 3.2 (Writing) 3.2.A.1 3.2.A.2

Subject Area	Interdisciplinary Connection	Resources	Going Further	NJCCCS
	<p>ocean/pond life.</p> <ul style="list-style-type: none"> Record ideas about pond/ocean habitats on sentence strips. 		<p>Students can make a decorated paper beach towel. Discuss things you need to take to the beach for an enjoyable day. List all of the words on the board. Hand out pieces of sentence strips and have the students attach the words to their beach towel. They can even illustrate at the end of the strip. Take pictures of each student and place them on the beach towel.</p> <p>Poems: Ocean</p> <p>Writing: Student observation journal using key vocabulary and pictures. Acrostic poems for words PONDS/OCEANS. Students will use the first letter in the word to write a word associated with the habitat.</p> <p>Pretty Oceans Nests Ducks Snails</p>	<p>3.2.A.4 3.2.A.6 3.2.B.1 STANDARD 3.3 (Speaking) 3.3.A.1 3.3.B.1 3.3.B.2</p>
Mathematics	<p>During the Bingo game, counting the number of squares covered.</p> <p>Introduce terms horizontal, vertical, and diagonal.</p>	<p>Bingo cards Cup of 9 bingo markers</p>	<p>Use goldfish crackers for counting, estimating, and graphing.</p>	<p>STANDARD 4.1 (Number and numerical operations) 4.4.A.1</p>
Social Studies			<p>Observe New Jersey maps to locate the ocean and rivers.</p>	
Visual Arts	<p>Students will begin creating bulletin board pond habitat using information they have learned about animals and plants. Students will choose one pond and one ocean organism to draw and color.</p>	<p>Drawing paper Markers, crayons, paint Pictures of organisms</p>	<p>Paper plate frog.</p>	<p>STANDARD 1.2 (Creation and Performance) 1.2.D.1, D.2</p>

Subject Area	Interdisciplinary Connection	Resources	Going Further	NJCCCS
Technology			Pond coloring book http://www.eibspond.com/ Virtual pond tour http://www.yvw.com.au/newed/juniors/pond/life_in_a_pond.html	
World Language				
Career Education & Consumer, Family & Life Skills			Visit local aquariums: Jenkinson's in Point Pleasant Adventure Aquarium in Camden	
Physical Education			Crab Bowl The objective of the game is to discuss how crabs move on the land and in the water. Students are divided into two teams. The crabs must cross the tide pool without getting bowled over or hit by one of the foam balls. Check out Rob Causton's website for more information. He is a MARE teacher. http://www.warrennet.org/oxford/causton/	