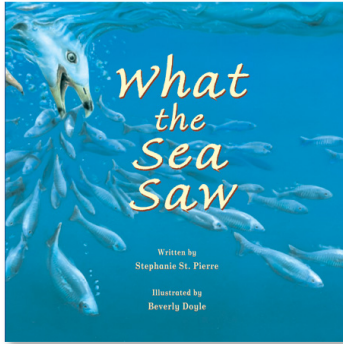


TEACHER'S GUIDE



What the Sea Saw

Written by Stephanie St. Pierre | Illustrated by Beverly Doyle

HC: 978-1-56145-359-7

Ages 4–8 | Informational
AR • F&P • GRL P; Gr 3

ABOUT THE BOOK

What the Sea Saw reveals the interactions taking place within a seashore ecosystem from various points of view through lyrical, poetic language and bold, beautiful illustrations. The spare text details simple interactions within each habitat of a marine ecosystem and allows the reader to make the connections between the living organisms and nonliving components in each. St. Pierre's narrative parallels the timeless cycles of the natural world and is complemented by Doyle's realistic, lush illustrations that show the relationships among the water, shoreline, and dunes habitats. The final pages offer further details about coastal ecosystems and the habitats featured in the text. Eco-tips highlight ways to preserve the seashore ecosystem.

THEMES

- Marine biome
- Ecology
- Seashore ecosystem
- Ocean/beach habitats
- Ocean and shoreline organisms

BEFORE YOU READ

Ask the students about their seashore experiences and discuss what sort of things you'd find along the seashore. Integrate their senses as they describe their thoughts. Name the seashore and ocean organisms they've seen or know about. Write the words ocean and beach on the board and discuss them. Ask where a shark might live; a crab, and fish. Tell them to look at the illustrations carefully as you read the book and see if they can be more specific.

AS YOU READ

Read the book through the first time, and then reread it. After re-reading each spread, discuss the illustrations. Identify in the picture where the animal or plant is shown. Define habitat and discuss the habitats they see in the book. Point out the lyrical, descriptive language and talk about how it conveys the meaning in few words.

AFTER YOU READ

Read the back matter and discuss ecosystems. Introduce the vocabulary words listed in the language arts section. Have the students make an illustrated page of the words.

BACKGROUND FOR THE TEACHER

- **Figurative language:** Examples of alliteration, personification, imagery, mood, and tone are found in the book.
- **Scientific method:** The scientific method is an investigative process by which a scientist looks for answers to a problem or question. In this process, two experiment-style activities take place. Each of the two experiments is identical, except for one change item in the second experiment. This one change is the variable. The first step, which remains unchanged, is called the control. Emphasize that the scientific method is not simply a step-by-step process, but an ongoing investigative exploration where new information or evidence can make the investigator return and repeat any of the steps. The following terms are commonly used in the investigative process.
 1. **Title**—Name the experiment; should reflect what is being investigated.

2. **Problem or question**—This defines what the student is seeking to know.
3. **Research**—Students should have some familiarity with the topic they wish to investigate. This is generally written after reading is completed.
4. **Hypothesis**—Using their research knowledge, students predict what they think will happen when they conduct the experiment.
5. **Materials**—List of items to be used in the experiment.
6. **Procedure**—A step-by-step guide for conducting the experiment.
7. **Data**—Qualitative observations (observations made using their senses) and quantitative observations (measurements) which are recorded.
8. **Results**—A telling of what happened when the experiment was conducted.
9. **Conclusion**—An analysis of the results to determine if the hypothesis was accurate or inaccurate. If false, the experiment should be redesigned and tried again.
10. **Report**—A written discussion of the experiment.

CLASSROOM ACTIVITIES

ART

Create a class shoreline/ocean bulletin board. Use light blue, dark blue, and beige/yellow butcher paper background for the sky, the ocean, and the beach. Add three-pronged sandpiper footprints on paper by having each student dip their three middle fingers into paint and pressing them on paper. Display the art on a beach section of the bulletin board. Use brown paper bags and sponge paint sea creatures from the book. Cut them out and add to the appropriate section. Dip yarn into paint and lay the wet yarn onto manilla paper. Fold the paper in half over the string and pull it free. Use these pictures to create the plants.

Expand on the ecosystem bulletin board by including the ecological niches of the living organisms mentioned in the book and illustrations. Set up sections denoting the sky, ocean surface, shallow water, deep ocean, tide pools, dunes, and grasslands behind dunes. Create a poster showing “rules” for protecting ocean and beach ecosystems.

LANGUAGE ARTS

- **Point of View:** Read the book aloud. With the class, list together the things the sea saw, and then list the

things the sky saw. Add other lists as the new observations are introduced, such as what the gull saw, what the fish saw, etc. Next go outside and have the children lie on their backs around the playground or under a tree. Ask them to observe what they see and sit up to write their own list of words that will help them remember.

Back inside the classroom, write a descriptive paragraph about what they saw. Using the original list, have them next write about what they could see from the POV of one of the animals if they were in the book.

Using the POV paragraphs, have the students revise them by adding sensory details that help describe or explain what they saw. Then do another revision to incorporate figurative language like that seen in the book's text.

- **Vocabulary Words**

1. **ecology:** the study of living organisms and their environment
2. **ecosystems:** a localized group of interdependent organisms together with the environment that they inhabit and depend on
3. **habitat:** the specific niche (natural conditions and environment) occupied by a similar group of living things (species)
4. **organisms:** any form of life
5. **species:** a group of living things that can reproduce and have viable offspring (or have DNA which is similar)
6. **biome:** the set of plants and animals living in a habitat that occupies a certain geography
7. **marine:** relating to the ocean or sea
8. **tide pool:** a shallow pool of sea water left after the tide retreats
9. **intertidal zone (littoral zone):** areas covered by sea water at high tides and exposed to the air at low tides
10. **sunlit zones (euphotic):** shallow ocean levels where sunlight can penetrate the water. (eu-good, photic-light)
11. **Midnight zone (aphotic):** bottom of ocean; light cannot penetrate to this level. (a-without, photic—light)
12. **coral reef:** warm shallow salt-water environment with structures formed by living organisms
13. **Niche:** natural conditions and habits of a particular species in a community within a habitat

MATH

Make jellyfish using small, round, blown up balloons and yarn for the tentacles. Attach the yarn around the balloon so that the ends dangle below the balloon body. Jellyfish tentacles are in multiples of four, so assign a number (in multiples of four) to each student or group and have them calculate how many strands of yarn they need. Define symmetry and discuss how you'd show symmetry in the jellyfish models. The tentacles can range from one (a few don't fit the symmetry) up to hundreds.

SOCIAL STUDIES

Research an animal or plant from the book and find out where they live. Look up their specific habitat. Using a world map, identify the continents and oceans where their habitats are located.

SCIENCE

- Identify the living organisms (including plants) and non-living items from the book, using text and illustrations. Make a list and categorize them by: vertebrate/invertebrate; land environment/water environment; how each animal moves; body covering.

Using a container of seashells, assorted buttons, or shapes of differing colors and sizes, give groups of students a set of items and instruct them to devise a classification system. Each group will explain their reasoning for how they set up their classification system. Use this as an introduction to the idea of scientific nomenclature, or scientific naming and grouping of all living organisms.

Using the bulletin board, create images of the organisms and their environment and add them to the class bulletin board with labels. Create a simple food chain that fits within the habitat ecosystem. Use yarn to connect the food chain components and attach it to the bulletin board.

Make observations using a large seashell and a starfish. Write the observations as qualitative and quantitative.

- **Beach Erosion Experiment:** (To use with Worksheet 1) Discuss the damaging effects of water on the dunes and talk about why the plants protect dunes.
 1. **Lower grade students:** Develop, write and conduct the experiment together.
 2. **Upper grade students:** (Who are familiar with the scientific method) Assign groups of students to develop the actual experiment design, and then

ask each group to conduct the experiment. Write up the experiment using the scientific method.

- Develop and conduct an experiment to show the effects of erosion on the beach by creating two sand dunes using sandbox sand.
- Cover one dune with a beach-style grass (whatever is available locally) in one place on one dune, sticking it deep into the sand. Leave the other bare.
- Read about dune erosion and form a hypothesis about what will happen as water flows over the two dunes.
- Slowly pour a set amount of water over the two dunes. Measure the width and length of the channels left by the water. Repeat this process a decided-upon number of times until the dunes are significantly changed.
- Write the observations and record data following each water pour.
- Make a list of the results and draw conclusions. Compare the conclusion to the hypothesis.

WEBSITES

Excellent scientific method graphic:
<http://www.sciencebuddies.org/science-fair-projects/scientific-method-handout.pdf>

All about oceans and seas:
<http://www.enchantedlearning.com/subjects/ocean/>

Simple graphic organizer for sensory observation:
http://www.eduplace.com/graphicorganizer/pdf/sense_eng.pdf

REVIEWS

“Brings a habitat to life through magical words and artwork, and is worth visiting again and again.”

—*School Library Journal*

“This simple beginning introduces a profound concept—the interconnectedness of all life—at a level preschoolers can understand.”

—*Kirkus Reviews*

“Sheer poetry...stunning images of coastal life”

—*BookLinks*

AWARDS

- Conservation Book of the Year Award
—Izaak Walton League of America
- Society of School Librarians International Book Awards (Honor Book, Science K–6)
—Society of School Librarians International
- Kansas State Reading Circle Recommended Reading List (Primary) —Kansas National Education Association

ABOUT THE AUTHOR

Stephanie St. Pierre has written books for children for over twenty years. She especially enjoys writing about nature. In her presentation “Look At the World and Learn,” St. Pierre discusses how looking at the world is one of the important steps to understanding it better. Looking, or observation, is also one of the important tasks for every scientist. The next step is to record what has been seen—in words or pictures, or even sounds or movements. St. Pierre lives in Brooklyn, New York.

ABOUT THE ILLUSTRATOR

Beverly Doyle has illustrated several books for young people, including *Aliens from Earth* and *What the Sea Saw*. She is a graduate of Framingham State College with a major in fine arts and the Art Center College of Design in Pasadena, California. She lives in Vermont.

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Peachtree Teacher's Guide for
WHAT THE SEA SAW
prepared by Shirley Smith Duke

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What the Sea Saw
WORKSHEET 1
BEACH EROSION EXPERIMENT

Name _____ Date _____

Experiment Title: _____

Question:

Hypothesis:

Materials Needed:

Method/Procedures:

Results:

*Record measured data on back

Conclusion:
