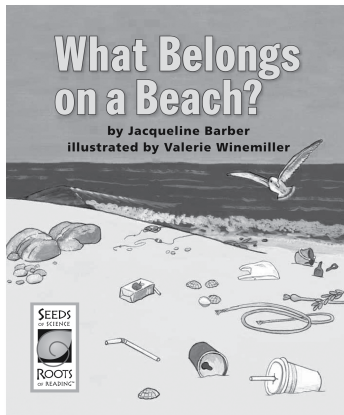


Teaching Concept Mapping

with *What Belongs on a Beach?*
from *Seeds of Science/Roots of Reading*[™]



Introduction

This strategy guide introduces an approach for teaching concept mapping to help students understand content presented in content-area texts. Concept mapping supports students in making connections between known information and new information. By creating concept maps, students clarify their understanding of the topic and integrate new ideas into their thinking. This guide includes an introductory section about teaching concept mapping, a general overview of how to teach this strategy with many science texts, and a plan for teaching concept mapping with the *Seeds of Science / Roots of Reading*[™] book, *What Belongs on a Beach?*

Book Summary

In *What Belongs on a Beach?* readers learn how marine litter ends up on beaches around the world and the harmful effects that this litter has on the plants and animals that live on the world's beaches. Readers learn that humans create marine litter when we leave trash on beaches or when ships dump waste at sea. In *What Belongs on a Beach?* special attention is given to the ways people can help solve these problems and become stewards for the beaches they visit. The presentation of simple ideas, such as putting garbage in its proper place rather than throwing it on the beach and explaining the way litter hurts marine animals, helps students learn to act responsibly on behalf of the environment.

About This Book

Reading Level

Guided Reading Level*: K

Text Features

book description, table of contents, glossary, headings, bulleted lists, about the author, bold print, italic print, diagrams, illustrations, captions

*Guided Reading Levels based on the text characteristics from Fountas and Pinnell, *Matching Books to Readers*.

Science Background

Beaches throughout the world are strewn with natural “drift” (kelp, seaweeds, rocks, shells) and human-made “debris.” Marine litter is human-made debris—garbage that ends up in the ocean or on the seashore. It's important to recognize the difference between drift and debris so that marine litter can be removed for the safety of people and animals. As the human population increases, the amount of waste we generate also increases. Every year, more trash ends up on beaches around the world. Some marine litter is carried by millions of visitors to the world's beaches. Some is dumped in the ocean from ships and is carried to beaches by ocean currents. Other marine litter is washed up on beaches via rivers, streams, and storm drains. Marine litter is more than an aesthetic problem; it can be deadly to ocean and beach inhabitants. Marine litter, such as fishing line, rope, and other plastic items, harms and kills huge numbers of marine plants and animals each year. Animals can become sick or die from ingesting items such as plastic bags. Efforts to clean up beaches help diminish the effects of marine litter. People can also reduce or prevent marine litter by creating less trash and enforcing laws that penalize people and companies that do not dispose of their waste properly.

About Concept Mapping

Concept maps are a visual way to represent relationships among ideas. Concept mapping helps students integrate new ideas with their existing knowledge. Teaching concept mapping affords students a process for organizing the information they learn from reading. Concept maps aid students in summarizing texts and identifying main ideas, as well as provide a useful way to assess student understanding of a topic. There are many possible ways to organize concept maps. The concept map featured in this guide has one main idea in the center and related ideas on nodes connected to the center. (For examples of various concept maps, see <http://www.seedsofscience.org/strategyguides.html>)

Teaching Concept Mapping

The following guidelines can be used to teach concept mapping with any content-rich book.

- Select a text that includes concepts related to your curriculum. Choose a text (or portion of a text) that has a clearly focused topic and a few main ideas.
- Develop a concept map. Sketch a concept map that represents the relationships among the ideas in the text, making sure that there is a large topic in the center and related subtopics connected to this central topic. (You can use the Concept Map copymaster included with this guide or create your own.) Fill in notes about relevant information from the text. You will use this concept map as a reference during class. Draw a large, blank version of the concept map on the board or on a piece of chart paper before class.
- Model concept mapping. Explain to the class that the drawing on the board is called a concept map. Tell students that a concept map can help them organize information they learn from reading. Write the topic in the center of the map and tell students that this is the main idea that they should pay attention to as they read the text.
- Identify ideas that relate to the main topic. During reading, you can stop periodically to discuss ideas as a class, or you can ask

students to flag important ideas in the text using sticky notes.

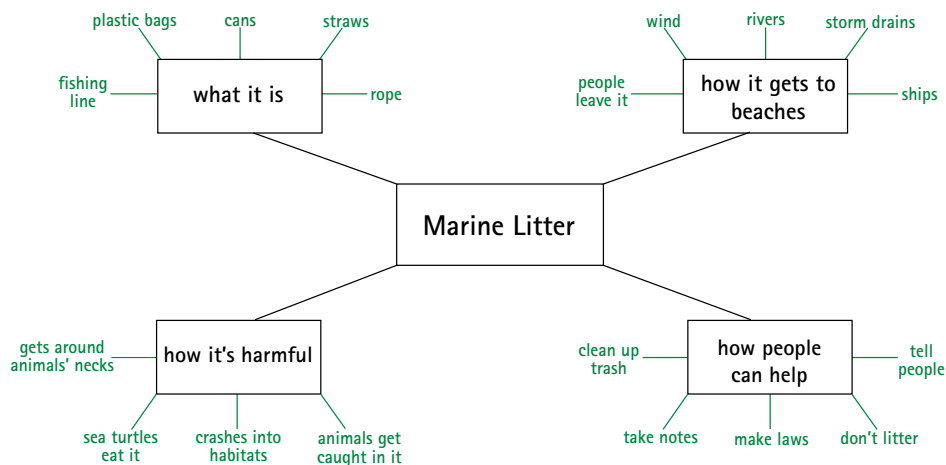
- Organize important concepts. Have students share relevant ideas they identified during reading. Record these ideas using single words or short phrases on the concept map. Organize related ideas by placing them around the central topic or branching off of the ideas previously listed. Explain why you are placing certain ideas in groups with other ideas or ask students to suggest where you should write their responses and explain their reasoning.
- To extend the activity, conduct a shared writing activity in which students help you construct a paragraph based on the concept map. Model turning the main idea in the center of the map into a topic sentence. Ask students to help you transform notes about the subtopics into sentences that support the topic sentence.
- Continue to use concept mapping as a way to organize information. When students read other content-rich books, construct class concept maps to note the main ideas and important details. As students become more familiar with concept maps, ask them to construct their own concept maps as they read to help them synthesize what they have learned. Concept maps can also be used to organize information from a variety of sources and for a variety of purposes, such as brainstorming in preparation for writing or reviewing key ideas from a unit of study.

Teaching Concept Mapping with *What Belongs on a Beach?*

Getting Ready

1. Fill in the information in the boxes on the Concept Map copymaster (shown in black type in the model on the following page). Make a copy for each student.
2. Draw a large version of the concept map on the board or on a piece of chart paper. Fill in only the information in the boxes, as you did on the copymaster. For your reference, suggested student responses are in green.

What Belongs on a Beach? Concept Map



Before Reading

1. Introduce the book. Tell students that *What Belongs on a Beach?* is about marine, or ocean, litter. Activate prior knowledge by asking students to briefly share what they know about litter and why it is a problem.
2. Explain that the picture you drew on the board is called a concept map, and it will help students organize the important ideas they will learn from reading. Point out that you have written “Marine Litter” in the center box because this is the topic that the whole book is about. Say that students will discuss the smaller ideas on the concept map after they have had a chance to read the book once through.

During Reading

Read *What Belongs on a Beach?* in a way that is consistent with your classroom routines, giving students as much independence as possible.

After Reading

1. Distribute a Concept Map student sheet to each student. Tell students that they will help you gather information from the book to add to the concept map.
2. Point out that the first subtopic on the concept map is “What it is.” Ask students to turn to pages 4–5 and reread these pages as a class. Ask, “What things on this page can be marine litter?” Caution students that not all of the objects pictured are marine litter; some are things that occur naturally on beaches. As students make suggestions, draw lines from the box labeled “What it is” and add a word or phrase to each line. Ask students to

do the same on their student sheets. (There are many possible responses; you need only list a few examples.)

3. Ask students to turn to pages 6–9 in their books. Reread these pages as a class and ask students to share suggestions for what to add to the section titled “How it gets to beaches.” Ask students to record notes branching off of this box on their Concept Map student sheets. Remind students to use words or short phrases and to connect each idea to the subtopic box with a line.
4. Tell students that now you would like them to reread the rest of the book and complete their Concept Map student sheets on their own. Give them about 10–15 minutes to do this. You may wish to have students work with a partner during this activity so they can work together to find relevant ideas in the book.
5. Ask students to share their concept maps. Students can also orally summarize part of the text using one subtopic on their concept map as a guide.
6. Ask students to reflect on how concept maps helped them organize information they learned from reading.

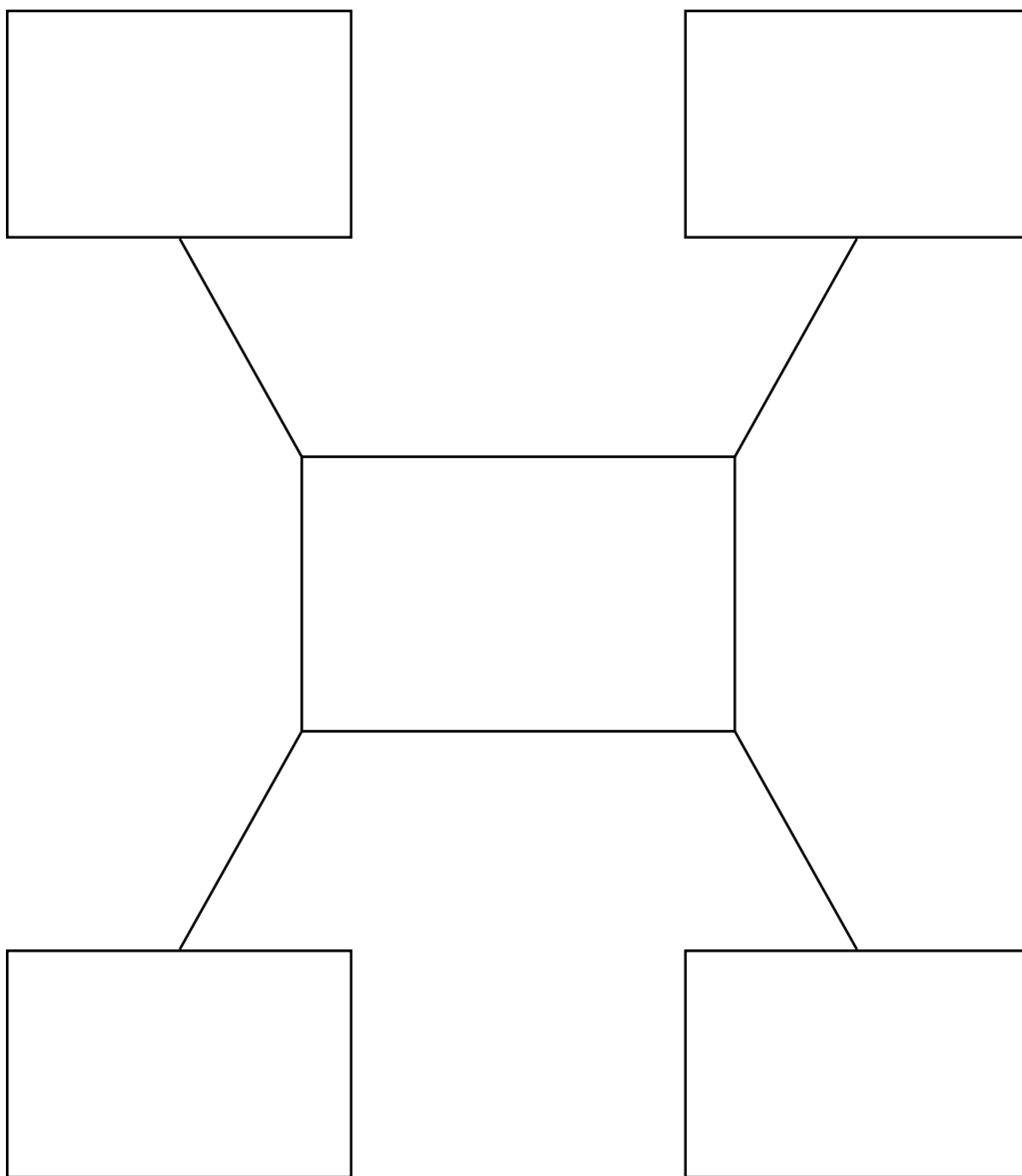
Independent Extension

Ask students to choose one of the four subtopics on their completed Concept Map student sheets. On a separate sheet of paper, have them write about the information from the selected section of the concept map. Students can illustrate their writing with a labeled drawing that shows key ideas, such as the one on pages 4–5 in *What Belongs on a Beach?*

Name _____

Date _____

Concept Map



About Strategy Guides

A six-page strategy guide is available for each *Seeds of Science / Roots of Reading*™ student book. These strategies support students in becoming better readers and writers; they help students read science texts with greater understanding, learn and use new vocabulary, and discuss important ideas about the natural world and the nature of science. Many of these strategies can be used with multiple titles in the *Seeds / Roots* series. For more information, as well as for additional instructional resources, visit the *Seeds / Roots* website (<http://www.seedsofscience.org/strategyguides.html>).

Available Student Books for Grades 2–3

Twenty-three engaging student books are now available, each with a corresponding strategy guide. The books are part of the *Seeds of Science / Roots of Reading*™ curriculum program described on page 6. Four *Gravity and Magnetism* student books and strategy guides will be available in 2009.

Soil Habitats	
Strategy	Student Book
Using Discourse Routines with Science Texts	<i>Into the Soil</i>
Using the Cognates Strategy	<i>Walk in the Woods</i>
Connecting Science Words and Everyday Words	<i>What Are Roots?</i>
Teaching About the Nature of Science	<i>Talking with a Habitat Scientist</i>
Teaching Text Structure	<i>Handbook of Forest Floor Animals</i>
Using Text Features	<i>Earthworms Underground</i>
Taking Notes Based on Observations	<i>My Nature Notebook</i>
Making Sense of Data in Science Texts	<i>Snail Investigations</i>
Using Discourse Circles	<i>Without Soil</i>
Shoreline Science	
Strategy	Student Book
Teaching Vocabulary with Science Texts	<i>Beach Postcards</i>
Teaching Concept Mapping	<i>What Belongs on a Beach?</i>
Teaching Scientific Explanations	<i>Gary's Sand Journal</i>
Interpreting Visual Representations	<i>What's Stronger? The Forces That Cause Erosion</i>
Using Text Features	<i>What Lives on a Sandy Beach?</i>
Teaching About Multiple Meaning Words	<i>My Sea Otter Report</i>
Searching for Information in Science Texts	<i>Handbook of Sandy Beach Organisms</i>
Teaching Text Structure	<i>The Black Tide</i>
Teaching About the Nature of Science	<i>Shoreline Scientist</i>
Designing Mixtures	
Strategy	Student Book
Using Discourse Circles	<i>What If Rain Boots Were Made of Paper?</i>
Using Anticipation Guides	<i>Solving Dissolving</i>
Teaching Scientific Explanations	<i>Handbook of Interesting Ingredients</i>
Teaching Text Structure	<i>Jelly Bean Scientist</i>
Teaching About the Nature of Science	<i>Jess Makes Hair Gel</i>

Extend Learning with *Seeds of Science/Roots of Reading*™

The strategy featured in this guide is drawn from the *Seeds of Science / Roots of Reading*™ curriculum program. *Seeds / Roots* is an innovative, fully integrated science and literacy program.

The program employs a multimodal instructional model called “Do-it, Talk-it, Read-it, Write-it.” This approach provides rich and varied opportunities for students to learn science as they *investigate* through firsthand inquiry, *talk* with others about their investigations, *read* content-rich books, and *write* to record and reflect on their learning.

Take advantage of the natural synergies between science and literacy instruction.

- Improve students’ abilities to read and write in the context of science.
- Excite students with active hands-on investigation.
- Optimize instructional time by addressing goals in two subject areas at the same time.

To learn more about *Seeds of Science / Roots of Reading*™ products, pricing, and purchasing information, visit www.seedsofscience.org



Soil Habitats Science and Literacy Kit



Developed at Lawrence Hall of Science and the Graduate School of Education at the University of California at Berkeley.

Seeds of Science/Roots of Reading™ is a collaboration of a science team led by Jacqueline Barber and a literacy team led by P. David Pearson and Gina Cervetti.

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