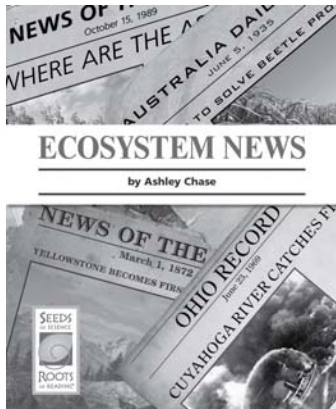


Teaching Text Structure

with *Ecosystem News*

from *Seeds of Science/Roots of Reading*®



Introduction

This strategy guide introduces an approach for teaching students how to identify a book's text structure. Text structure refers to how a text is organized; understanding this organization can support reading comprehension. Science texts are often organized around conventional structures such as cause-effect, time-order, or compare-contrast. This guide includes an introductory section about the strategy of identifying a text's structure, a description of how to teach this strategy with many science texts, and a plan for teaching text structure with the *Seeds of Science/Roots of Reading*® book *Ecosystem News*.

Book Summary

Ecosystem News is a series of newspaper-style articles about three real-life environmental situations. The articles are based on problems that were caused by human interactions with ecosystems. For each ecosystem, readers learn why and how changes in a particular ecosystem were made and how these changes affected other aspects of the ecosystem. Readers learn about the effects of pollution on a river ecosystem, how introducing cane toads to an ecosystem to eat beetles caused other problems, and how the presence or absence of wolves affected a forest ecosystem. From these compelling stories, readers learn that humans can have both a positive and a negative impact on ecosystems.

Science Background

A community of organisms living together within its environment, or physical surroundings, is called an ecosystem. Scientists who study ecosystems are called ecologists. Ecologists seek to learn more about the workings of nature, such as the relationships of organisms to their environment and to one another. To understand an ecosystem as a whole, scientists study its parts and how those parts interact. All organisms, including humans, cause changes to their ecosystems. Humans are part of many different ecosystems and depend upon and interact with these ecosystems in different ways. Before making changes to an ecosystem, it is important to understand how the ecosystem works. Even with this understanding, it can be very difficult to accurately predict how ecosystems will change over time. When changes occur in an ecosystem, some plants and animals survive and reproduce, and others die or move to new locations. Humans can harm ecosystems in various ways—through pollution, habitat destruction, and introduction of nonnative species. Humans can also reduce harm to ecosystems and help restore damaged ecosystems through education and awareness, by controlling the amounts of certain types of organisms in an ecosystem, and by making laws and regulations that protect or sustain ecosystems.

About This Book

Reading Level

Guided Reading Level*: R

Key Vocabulary

ecosystem, human impact, organism, population, predator

Text Features

bold print, captions, glossary, headings, photographs, table of contents

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

About Text Structure

Text structure refers to the ways that authors organize information in text. For example, some texts are organized as a chronological sequence of events, while others compare two or more things. Teaching students to recognize the underlying structure of content-rich texts can help them focus attention on key concepts and relationships, anticipate what is to come, and monitor their comprehension as they read.

Students can learn to identify a text's structure by paying attention to signal words. Signal words link ideas together, show relationships, and indicate transitions from one idea to the next. Each text structure is associated with different signal words (shown in the box on this page). Text structure can also be taught using graphic organizers, which visually represent the relationships among key ideas. Graphic organizers can be particularly helpful for English Language Learners and struggling readers who can use these visual tools to help organize important ideas from text.

Teaching Text Structure

The following guidelines can be used to teach students about common text structures in content-rich texts.

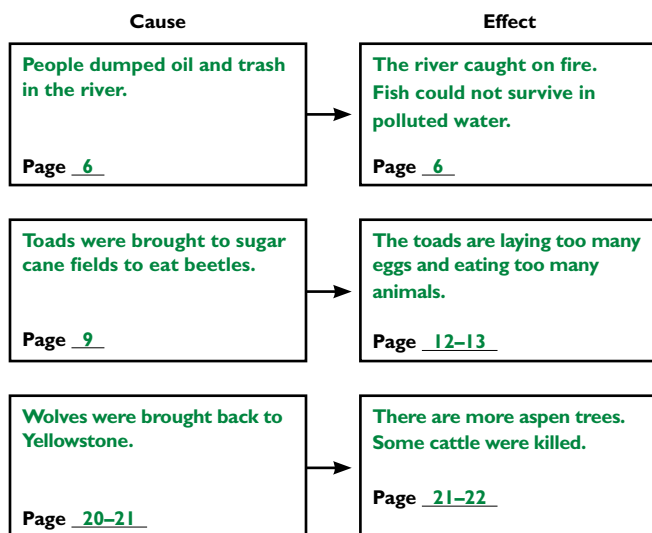
- Select an appropriate text on a topic from your curriculum. Note that some texts may utilize more than one text structure. When introducing text structure, it is best to select a text (or portion of a text) that has one easily identifiable text structure.
- Locate a graphic organizer that represents the text's structure and create a blank version on the board to complete with students during class. You may also choose to reproduce individual copies of the graphic organizer for students. Graphic organizers for various text structures are available on the *Seeds/Roots* Web site (www.seedsofscience.org/strategyguides.html).
- Before reading the text, explain to students that informational texts can be organized in predictable ways. The way that the text is organized is called its structure. Identifying a text's structure can help readers anticipate

Text Structure Signal Words

- **cause–effect:** therefore, as a result, cause, so, because of, since, in order to, if...then
- **problem–solution:** fortunately, unfortunately, therefore, trouble, problem, issue, challenge, answer, solution, conclusion
- **compare–contrast:** different from, the same as, similar to, as well as, but, compared to, in contrast, however, like, unlike, more, less
- **time–order:** first, next, then, last, finally, meanwhile, following, before, after, on [date]
- **description:** for example, for instance, in addition, also, too, some, most, all, other
- **question–answer:** what, where, why, who, how, when, does

how ideas will be presented and can aid in comprehension.

- Explain that students can identify a text's structure by paying attention to signal words. These words link ideas together, show relationships, and indicate transitions from one idea to the next.
- Read a portion of the text aloud, indicating when signal words are used. Point out how these words help you determine which text structure the author used to organize the book. (Use the box at the top of this page as a reference.)
- Have students finish reading the text. Remind them to use signal words to help them pay attention to how the text is organized.
- Introduce the graphic organizer that you drew on the board. Explain that the graphic organizer visually depicts how the text is structured. Have students help you complete the graphic organizer on the board using ideas from the text. You can also have students write ideas on individual graphic organizers.
- Reinforce that identifying a text's structure can help students better understand what they read. Remind students to pay attention to text structure as they read. Introduce other text structures as students encounter them when reading content-rich texts.



Teaching Text Structure with *Ecosystem News*

Getting Ready

1. Make a copy of the Cause–Effect Text Structure copymaster for each student.
2. Draw a large version of the graphic organizer on the board or on chart paper using the model above. You will fill in the first row during class; suggested student responses are in green for your reference.

During Class

1. Tell students that they are going to read a book about ecosystems. Explain that an ecosystem is a community of organisms living together within its environment.
2. Tell students that informational texts such as *Ecosystem News* are often organized in predictable ways and that the way the text is organized is called its structure. Emphasize that identifying a text’s structure can help readers understand a text.
3. Explain cause and effect with an example students can relate to: *Outdoor recess was cancelled because of rain*. Point out that it can be helpful to think about effect as *what happened* and cause as *why*. Ask students to identify the cause and effect in the example. [Rain. Outdoor recess was cancelled.] If necessary, provide additional examples.
4. Introduce *Ecosystem News*, a book about real-life situations in which humans have changed

ecosystems. Point out that the book is a series of newspaper articles and briefly discuss the features, such as dates and headlines, that will help students track events over time. Words that indicate the use of the cause–effect text structure are *because*, *so that*, *cause*, and *since then*.

5. Read *Ecosystem News* in a way that is consistent with your classroom routines, giving students as much independence as possible. Tell students to focus on how humans cause changes in ecosystems—each change humans make to an ecosystem (cause) leads to something new in that ecosystem (effect).
6. After reading, distribute the Cause–Effect Text Structure student sheets. Model identifying and recording cause and effect using the Cuyahoga River ecosystem. First, have students reread page 6 and discuss the article. Ask, “What happened?” [The river caught on fire. Fish could not survive in polluted water.] Write this in the “Effect” box on the board and have students do the same on their student sheets.
7. Next, have students identify the cause by asking, “Why did the fire in the river happen?” [People were dumping oil and trash in the water.] Record this in the corresponding “Cause” box and have students do the same on their student sheets.
8. Explain that students should complete the remaining cause–effect relationships on their student sheets by looking back through the text, selecting an article about each of the two remaining ecosystems, and locating the cause and the effect. Point out that there are multiple causes and effects for each ecosystem; students should choose just one to record.
9. Have students share their responses and then lead a discussion in which students discuss the causes and effects in each situation.

Independent Extension

Ask students to reread the article on pages 12–13 of *Ecosystem News*. Have pairs discuss ways that scientists might try to solve the cane toad problem. Encourage students to use information in the article to support their ideas.

Name _____ Date _____

Cause-Effect Text Structure

Title of book: _____

Cause

Effect

Page _____



Page _____

Page _____



Page _____

Page _____



Page _____

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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* Web site (www.seedsofscience.org/strategyguides.html).

Student Books for Grades 4–5

Twenty-seven engaging student books are 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.

<i>Aquatic Ecosystems</i>	
Strategy	Student Book
Teaching Scientific Description Writing	<i>Visit to a Pond</i>
Gathering Information from Science Texts	<i>Tabletop Pond Guide</i>
Interpreting Visual Representations	<i>Investigating Crayfish</i>
Using Roundtable Discussions	<i>Dragonfly Explanations</i>
Making Sense of Data in Science Texts	<i>Eat and Be Eaten: How an Ecologist Uses Food Webs</i>
Teaching Concept Mapping	<i>What Makes Living Things Go?</i>
Teaching Scientific Comparison Writing	<i>Ecosystems Around the World</i>
Teaching Text Structure	<i>Ecosystem News</i>
Teaching Vocabulary with Science Texts	<i>Making a Difference</i>
<i>Planets and Moons</i>	
Strategy	Student Book
Connecting Science Words and Everyday Words	<i>Exploring Planets and Moons</i>
Using Science Text to Visualize	<i>Spinning Through Space</i>
Taking Notes Based on Observations	<i>Observing the Moon</i>
Using the Cognates Strategy	<i>How Big Is Big? How Far Is Far?</i>
Teaching Scientific Comparison Writing	<i>Handbook of Planets and Moons</i>
Using Discourse Circles	<i>What About Pluto?</i>
Teaching About How Scientists Use Models	<i>Planetary Scientist</i>
Using Anticipation Guides	<i>Tomato Landers</i>
Promoting Word Consciousness	<i>Technology for Exploration</i>
<i>Chemical Changes</i>	
Strategy	Student Book
Teaching Scientific Explanation Writing	<i>Chemical Reactions Everywhere</i>
Posing Investigation Questions	<i>Handbook of Chemical Investigations</i>
Teaching Text Structure	<i>What Happens to the Atoms?</i>
Teaching Procedural Writing	<i>Bursting Bubbles: The Story of an Improved Investigation</i>
Promoting Word Consciousness	<i>Communicating Chemistry</i>
<i>Models of Matter</i>	
Strategy	Student Book
Teaching Summary Writing	<i>Made of Matter</i>
Using Roundtable Discussions	<i>Break It Down: How Scientists Separate Mixtures</i>
Interpreting Visual Representations	<i>Phase Change at Extremes</i>
Teaching About How Scientists Make Inferences	<i>Science You Can't See</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



Aquatic Ecosystems 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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