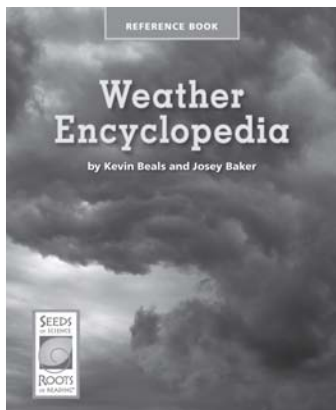


Gathering Information from Science Texts

with *Weather Encyclopedia*
from *Seeds of Science/Roots of Reading*®



Introduction

This strategy guide introduces an approach for teaching students to gather information from texts. Gathering information is an important reading-to-learn strategy that can be used when reading content-rich texts. This strategy is particularly important in science, as scientists often read to find out about a specific topic or answer a question. This guide includes an introductory section about gathering information, an overview of how to teach this strategy with many science texts, and a plan for teaching students to gather information from the *Seeds of Science/Roots of Reading*® book *Weather Encyclopedia*.

Book Summary

Weather Encyclopedia is a reference book about various weather topics. The book contains 31 interesting entries about a wide range of important weather ideas. Many types of weather, such as tornadoes, hurricanes, and sleet, are described in detail. Readers also learn about natural phenomena that relate to the weather, such as humidity, condensation, evaporation, and sunlight. Sections on topics such as meteorology, weather maps, and climate are also included. Photographs, labeled diagrams, and maps are used to explain weather concepts, and text features, such as an index, table of contents, headings, and bold words, help readers navigate through the book and locate important information of interest.

About This Book

Reading Level

Guided Reading Level*: R

Key Vocabulary

atmosphere, climate, condition, meteorologist, weather

Text Features

bold print, bulleted lists, captions, diagrams, glossary, headings/subheadings, illustrations, index, labels, maps, photographs, table of contents, text boxes

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

Science Background

Weather is a term used to describe anything that happens in the atmosphere related to temperature, water, and air. The atmosphere is the layer of air that surrounds Earth. Earth's atmosphere is a mixture of gases that consists mostly of nitrogen (78%) and oxygen (21%), but also includes water vapor and other gases. Humidity is a measure of the water vapor in the air. Clouds form when water vapor in the air changes into ice crystals or tiny droplets of liquid water. Meteorologists are scientists who study weather by observing and measuring various conditions, such as humidity, precipitation, and wind speed and direction. Meteorologists use these data to better describe weather patterns, which enable them to make predictions about the future weather. Meteorologists also investigate extreme weather, such as blizzards, thunderstorms, and tornadoes. One important aspect of weather is precipitation—solid or liquid water that falls to Earth. Types of precipitation include rain, freezing rain, hail, sleet, and snow. Precipitation is also an important component of the water cycle, which is the movement of water in and between the atmosphere, the surface of Earth, and underground. Precipitation, condensation, runoff, and evaporation are all parts of the water cycle.

About Gathering Information from Science Texts

Scientists engage in firsthand investigation, but they also investigate through reading. When scientists study a specific topic, they often read with a question in mind and gather information to inform or make sense of firsthand investigation. Generally speaking, reading to gather information helps readers establish a purpose, choose a text that addresses that purpose, and navigate the text to find the most relevant information. Students who are guided to identify a question or narrow a topic can more effectively gather information; this focus can help their reading comprehension. Learning to gather information from science texts is an authentic skill that helps students read to learn both in and outside of school.

Teaching How to Gather Information from Science Texts

The following guidelines can be used to teach students how to gather information as they read science texts.

- Identify a general topic of interest for your class (for example, space) and an appropriate science text to use when demonstrating how to gather information. If possible, select a reference book such as an encyclopedia or handbook, as these books contain a lot of information about a broad topic.
- Explain that science books contain large amounts of information and are often not read from beginning to end. Instead, a reader identifies a narrow topic or specific question and reads to gather specific information.
- Introduce the format of the type of reference book you chose by identifying the text features that it includes, such as the table of contents, headings and subheadings, glossary, and index. Note that these text features help the reader more easily locate sections of the text that are related to the topic or question posed.
- Discuss how gathering information from reference books is useful to scientists. For example, a scientist might gather information about the surface features of a planet before constructing a model of that planet. Guide students to understand that gathering information from text is a common practice for scientists.
- Demonstrate the use of the strategy with the chosen text. To begin, identify a question of interest. For example, if you are reading a book about space, think of a question, such as “How do scientists explore space?” Record your question on the board for reference.
- Introduce and model how to use text features to locate sections of the text that contain information related to your question. For instance, if you are using a book that has an index, show students how to identify key words related to the question (e.g., *space*, *explore*, *travel*, *astronaut*) and find the pages on which those words are found.
- Choose one portion of text to use as you demonstrate how to gather information that relates to your question. Read the passage or page aloud and talk through how the information helps answer the question you posed. Engage students in a discussion about what information answers the question.
- Establish a procedure for recording information gathered from text. You may wish to have students use the Gathering Information copymaster included in this guide to record the topic and question about which they are gathering information and notes about what they learned. Demonstrate how to record information in note form.
- Review the steps you used to gather information. Invite students to generate a list of these steps. Record the list on the board or chart paper for reference.
- Have students practice gathering information themselves. Using another portion of the text that you used to demonstrate the strategy, or using other texts, have students think of a question and gather relevant information. Discuss how students found information in the text.
- Continue providing opportunities for students to practice using this strategy. As students gain more experience, have them gather information from more than one source. Extend the strategy by having students write about or discuss the information they have gathered.

Where I will look for information to answer my question:	Information I found that relates to my question:
Tornadoes, page 39	<ul style="list-style-type: none"> • come from thunderstorms • tall clouds and humid air • wind speed and direction at different heights
Thunderstorms, page 38	<ul style="list-style-type: none"> • heavy rain and wind • warm, humid weather in spring and summer • cumulonimbus clouds with strong wind
Wind, page 43	<ul style="list-style-type: none"> • caused by changes in atmospheric pressure • helps predict weather • measured by speed and direction

Gathering Information from *Weather Encyclopedia*

Getting Ready

1. Make a copy of the Gathering Information copymaster for each student.
2. Prepare a chart using the example above. Write in only the column headings; you will fill in the green text with students during class.

During Class

1. Introduce *Weather Encyclopedia* by telling students it is a type of informational text called a reference book. Explain that a reference book is used to gather information about a topic and is not typically read from beginning to end.
2. Invite students to preview the table of contents, the headings, the glossary, and the index. Point out that these text features can help readers locate the information in the text.
3. Explain that when reading to gather information, it is best to have a question in mind. Model how to generate a question that you wonder about. For example, *What causes tornadoes?*
4. Tell students that they will read only the sections of *Weather Encyclopedia* that include information related to this topic. Ask them to use the table of contents to locate the section of text about tornadoes. [Page 39.]
5. Ask students to read page 39 and discuss what they learned with a partner. Engage the class in a discussion about the information they read that relates to the question you posed.

6. Draw attention to the chart you prepared before class and model how to gather information from the entry about tornadoes. Be sure to record only information that relates to the question. Demonstrate how to write the information from the book in note form.
7. Explain that when gathering information from a reference book, readers use multiple parts of the book. Point out that an encyclopedia refers the reader to other parts of the text that contain more information about the topic of interest. Ask, “What other topics relate to tornadoes?” “How do you know?” [Humidity, meteorology, thunderstorms, wind; these are listed at the bottom of page 39.]
8. Ask students to locate two more sections of the book that have information about tornadoes. [Thunderstorms, page 38; wind, page 43.] Ask students to read and discuss these sections. Again, demonstrate how to locate information about tornadoes in the text. Have students explain what information answers the question about tornadoes and why.
9. Distribute the Gathering Information student sheets. Instruct students to choose a topic of interest from the table of contents on page 3 (for example, dew) and then identify a specific question to answer (for example, *How is dew different from rain?*). Have them record their topics and questions on their student sheets.
10. Give students time to read and record the information they gather on their student sheets. Remind them to read all the sections that relate to their topics and questions. After they have gathered information, ask them to share what they learned with a partner.
11. Lead a discussion in which students share what they learned and explain how they located the information in multiple places in the text.

Independent Extension

Have students form groups of three or four and instruct each group to choose a topic from *Weather Encyclopedia* and read about it. Then, have each group member read a related section and discuss what they learned about the topic with one another.

Name _____ Date _____

Gathering Information

Title of book: _____

Topic: _____

Question: _____

Where I will look for information to answer my question:	Information I found that relates to my question:

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 3–4

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.

Digestion and Body Systems	
Strategy	Student Book
Analyzing Part-to-Whole Relationships	<i>Systems</i>
Teaching About the Nature and Practices of Science	<i>Secrets of the Stomach</i>
Teaching Process Description Writing	<i>Voyage of a Cracker</i>
Searching for Information in Science Texts	<i>Handbook of Body Systems</i>
Making Sense of Data in Science Texts	<i>What's the Diagnosis?</i>
Variation and Adaptation	
Strategy	Student Book
Teaching Scientific Comparison Writing	<i>Blue Whales and Buttercups</i>
Using Discourse Circles	<i>The Code</i>
Using Visual Evidence to Make Inferences	<i>Mystery Mouths</i>
Teaching About the Nature and Practices of Science	<i>Evidence from the Past</i>
Weather and Water	
Strategy	Student Book
Teaching About the Nature and Practices of Science	<i>Tornado! A Meteorologist and Her Prediction</i>
Teaching About Multiple Meaning Words	<i>Falling Through the Atmosphere</i>
Gathering Information from Science Texts	<i>Weather Encyclopedia</i>
Teaching Text Structure	<i>Water in the Desert</i>
Using the Cognates Strategy	<i>Drinking Cleopatra's Tears</i>
Connecting Science Words and Everyday Words	<i>Go with the Flow: Making Models of Streams</i>
Taking Notes Based on Observations	<i>Sky Notebook</i>
Teaching Text Features	<i>Wet Weather Handbook</i>
Making Sense of Data in Science Texts	<i>What's Going on with the Weather?</i>
Light Energy	
Strategy	Student Book
Teaching About Idioms	<i>Can You See in the Dark?</i>
Teaching Summary Writing	<i>The Speed of Light</i>
Teaching About the Nature and Practices of Science	<i>Why Do Scientists Disagree?</i>
Using Discourse Routines with Science Texts	<i>I See What You Mean</i>
Searching for Information in Science Texts	<i>Handbook of Light Interactions</i>
Teaching Scientific Explanation Writing	<i>Light Strikes!</i>
Teaching Vocabulary with Science Texts	<i>Cameras, Eyes, and Glasses</i>
Teaching Concept Mapping	<i>It's All Energy</i>
Interpreting Visual Representations	<i>Sunlight and Showers</i>

