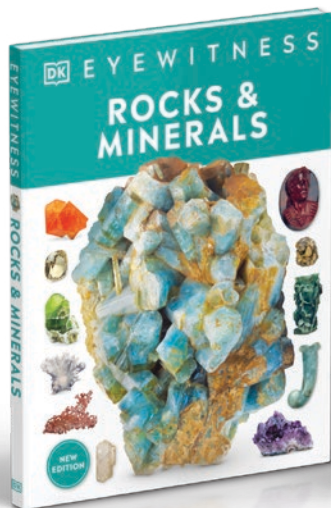
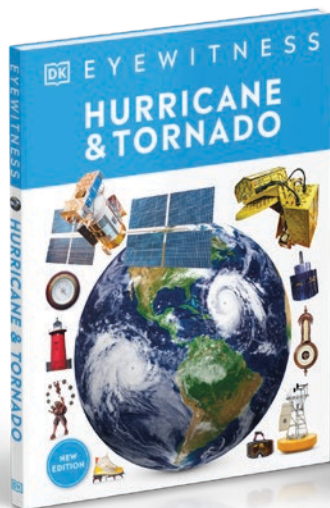
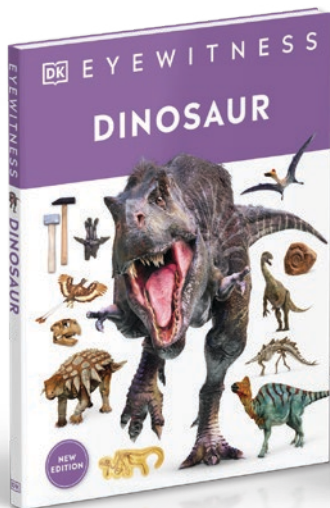


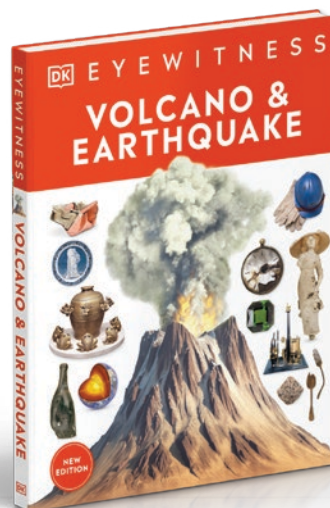


# EYEWITNESS



# MIDDLE SCHOOL SCIENCE

## EDUCATOR'S GUIDE





### NOTE TO EDUCATORS

DK has devoted itself to creating nonfiction books that are not only accessible for children but interesting to them as well. Their children's books make learning fun by including colorful illustrations and photographs, using kid-friendly language, and offering a wide range of topics to be explored. Nonfiction texts are not always easy to implement in classrooms, but DK has found that particular balance of education and entertainment that leaves children wanting to know more.

DK has spent the last few years talking with teachers, parents, librarians, literacy experts, booksellers, and kids ages 8–12 to find out what's needed in a modern history and social sciences classroom. Each book in the **DK Eyewitness** collection has engaging text, informational sidebars, and more, including:

- content written by a team of experienced authors
- careful vetting and approval by respected literacy and subject experts
- beautiful full-color photographs and illustrations
- “Eyewitness” boxes with reference content to share with friends
- “Did you know?” facts, questions, and answers to find out more about the subject
- “Find out more,” “glossary,” and “index” with reference content



### MIDDLE SCHOOL RELEVANCY

The DK *Eyewitness* collection covers topics that have been carefully selected to match those commonly covered in middle school Science lessons, ranging from modern history to life on Earth, and natural history to life in the ocean. The easy-to-follow text and strong visual design features bring these topics to life in a way that appeals to the current generation of middle school students, who are used to consuming bite-sized and highly visual content.

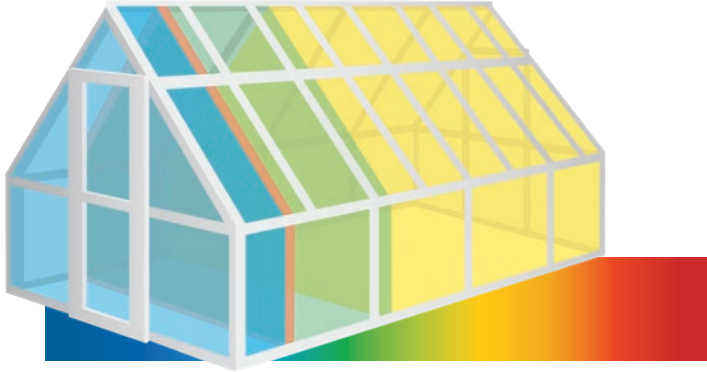
The Next Generation Science Standards (NGSS) emphasize students' understanding of the correlation between science, engineering, and technology, and the impact this interrelation has on society. Through titles such as *Ancient Egypt* and *Ancient Rome*, students come to understand how discoveries and inventions by ancient civilizations influenced and shaped later innovations and the relevance of these in the modern world. Similarly, titles such as *Weather* and *Natural Disasters* demonstrate how human activity impacts the natural environment.

Engagement is a core concept in middle school Science, and students are expected to participate in class discussions, offer explanations, and reach conclusions. The texts in the DK *Eyewitness* collection are thought-provoking and lead into natural, meaningful discussions while also offering plenty of evidence that students can use to support their arguments.

In addition to subject-specific content, the books promote the development of soft skills such as critical thinking and argumentation, technical skills related to language development, and reference skills. All of these are essential for the development of citizenship competences.

Teachers are encouraged to choose how they would like to use the books available within the collection series; however, this Teacher's Guide provides suggestions on how to work with the materials and specify how the books are closely related to the Next Generation Science Standards (NGSS) and Common Core State Standards (CCSS), accessible online here:

[www.corestandards.org](http://www.corestandards.org)    [www.nextgenscience.org](http://www.nextgenscience.org)



### MIDDLE SCHOOL RELEVANCY

Besides including clear curriculum references by showing how the topics of the books relate to NGSS and CCSS standards, the Teacher's Guide also:

- includes valuable notes to educators so they know how to work with the materials provided in the series
- provides suggestions for project work and homework or activities students can do at home
- includes two step-by-step lessons with individual and group activities and discussion questions. In this guide, you can find two science lessons
- provides a breakdown of which books could be used for which subjects/topics
- includes a grade alignment table

At the end of the Teacher's Guide, there is a table with subject and topic coverage, which shows the subject and topic groupings that might work for your class.

We hope your students have a great time with the DK Eyewitness collection!

### LESSON PLAN 1: SCIENCE

This is a suggested science lesson plan to be used with the title *Weather*.

#### DISCUSSION QUESTIONS

##### Pre-Reading Questions

Before students begin reading the book, ask the following pre-reading questions. The questions included here are related to the *Weather* book, but you may use them as reference to create your own questions for other books in this series.

- What do you know about the Earth's atmosphere?
- Why do you think the weather changes from day to day and place to place?
- What is a cloud made of?
- What would you like to learn about the weather?

##### Reading

Make the book available for students to read in the classroom. Once all students have had time to examine the book, discuss the post-reading questions below and give students the opportunity to look at the book again to answer them. Alternatively, you may divide the class into three or four smaller groups and assign each group sections of the book, e.g. "The Restless Air" and "Natural Signs" to Group A, "The Science of Weather" and "Watching the Weather" to Group B, and so on. Depending on how large your class is, you may assign two or three sections per group and divide the class into smaller groups, so all sections are covered by the class.

**Note:** This could span several weeks depending on how much free time the students have and how many copies are available in the classroom. You may encourage fast finishers to read the books once they finish another class activity.



### LESSON PLAN 1: SCIENCE (CONT'D.)

#### Post-Reading Questions

After students have completed the book, engage them with these post-reading prompts.

- Identify the main subject and the main ideas within the subject of the book/section they read and locate where in the book/section they can find those ideas (MS-ESS2-2, MS-ESS2-5, CCSS.ELA-LITERACY.RST.6-8.1, CCSS.ELA-LITERACY.RST.6-8.2).
- Summarize the content of the book/section and tell their classmates in small groups or as a whole class (MS-ESS2-2, MS-ESS2-5, CCSS.ELA-LITERACY.WHST.6-8.2).
- Use ideas from the book/section to give their own opinion on the subject (MS-ESS3-5, CCSS.ELA-LITERACY.RST.6-8.8).

#### Writing Activity

Write a book report about the unit you read. Make sure to include terms from the glossary in your report. Make sure the report answers the following questions:

- What was the book about?
- What period of time does the book cover?
- What places does the book discuss?
- How can global warming be reduced or stopped?
- What are the most interesting pieces of information you learned from reading the book?

(MS-ESS3-1, MS-ESS3-2, WHST.6-8.1, WHST.6-8.7, CCSS.ELA-LITERACY.WHST.6-8.1.B, CCSS.ELA-LITERACY.WHST.6-8.2, CCSS.ELA-LITERACY.WHST.6-8.2.D, CCSS.ELA-LITERACY.WHST.6-8.4)

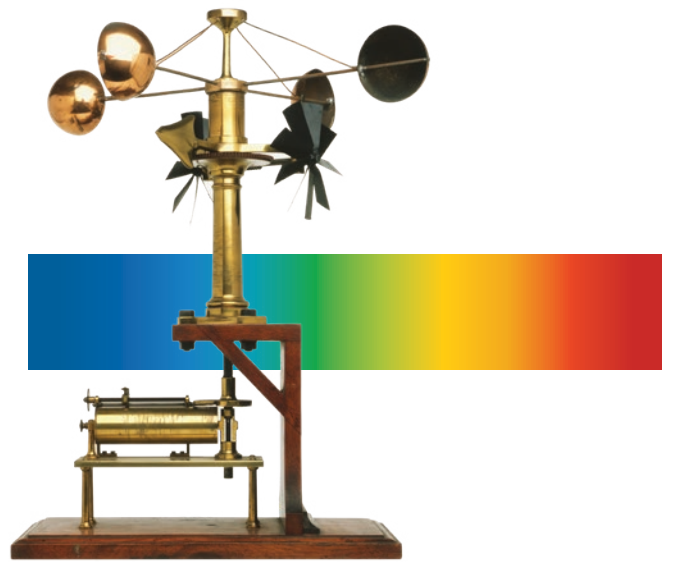
#### Group Project / Multimedia Presentation

Use the book to identify an important weather event. Create a presentation that focuses on these key points:

- Why was this event so important?

- What were the results of this event?
- How are the results still significant now?
- How important do you think this weather event will be in the future?

(CCSS.ELA-LITERACY.RH.6-8.3, CCSS.ELA-LITERACY.RH.6-8.5, CCSS.ELA-LITERACY.RH.6-8.7, CCSS.ELA-LITERACY.RH.6-8.10)



### LESSON PLAN 2: SCIENCE

This is a suggested science lesson plan to be used with middle school students reading *Volcano & Earthquake*, but questions and activities may be easily adapted to fit other books from the series.

#### DISCUSSION QUESTIONS

##### Pre-Reading Questions

Before making these books available to students in the classroom, ask a few pre-reading questions to activate their prior knowledge and get them interested in the topic you are focusing on. Some sample questions ranging in complexity might be:

### LESSON PLAN 2: SCIENCE (CONT'D.)

- Have you heard about volcanoes? And earthquakes?
- Have you ever read a book like this before? Can you describe it? What did you learn?
- What would you like to learn about volcanoes or earthquakes that you currently don't know?
- Are there volcanoes in your country?
- How do you think an earthquake occurs?

#### Reading

Now, allow the students to read through the book. Once all students have had the opportunity to examine the book, discuss the post-reading questions below in a conversational and open-ended, inquiry-based style.

**Note:** This could span several weeks depending on how much free time the students have and how many copies are available in the classroom. You may encourage fast finishers to read the books once they finish another class activity.

#### Post-Reading Questions

After students have completed the book, engage them with these post-reading prompts.

- What were some discoveries you made that you didn't know about before reading this book?
- Did looking at this book make you want to do deeper research on anything in particular?
- Identify a key idea from the book. Locate where in the book this idea is developed

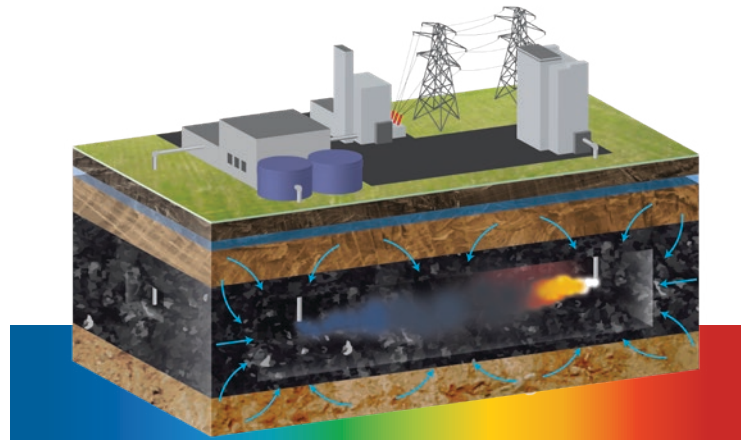
(MS-ESS2-3, RST.6-8.1, MS-ESS3-2, CCSS.ELA-LITERACY.RST.6-8.1, CCSS.ELA-LITERACY.RST.6-8.2)

(CCSS.ELA-LITERACY.RI.6.2, CCSS.ELA-LITERACY.RI.7.2)

- Write a short description of one event covered in the book. Use some of the terms from the glossary to compose a paragraph of text

(MS-ESS2-3, ESS3.B, WHST.6-8.9, CCSS.ELA-LITERACY.WHST.6-8.2)

(CCSS.ELA-LITERACY.RI.6.2, CCSS.ELA-LITERACY.RI.7.2)



- Develop a model to demonstrate and explain plate motions

(MS-ESS2-2, MS-ESS2-3, CCSS.ELA-LITERACY.RST.6-8.7)

- Discuss a variety of solutions to reduce the impact of earthquakes and volcano eruptions on humans

(4-ESS2-2, 4-ESS3-2, CCSS.ELA-LITERACY.WHST.6-8.2)

#### Homework Activities

Encourage students to take their learning further. The following homework suggestions can easily be adapted to different titles in the DK Eyewitness series:

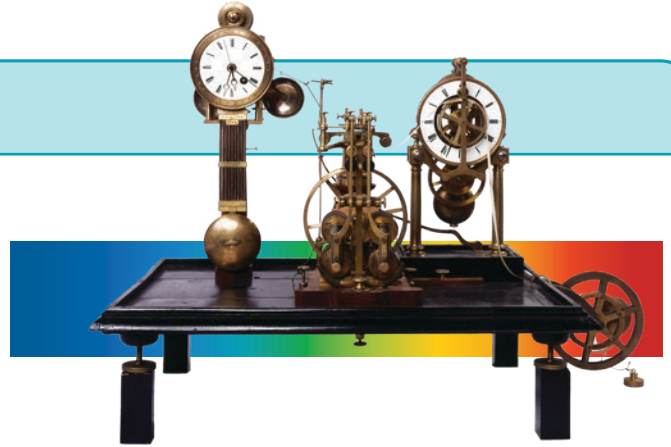
- Write down three questions that can be answered by reading the book. Then ask people in your family or ask your friends if they know the answer to these questions. Use the information from the book to teach them or confirm their ideas.
- Think of three questions related to the subject of the book that were not answered in the book or three questions that came to mind as you were reading and would like to find out more about. Look for the answers online.
- Make your own glossary for the book, choosing a few new words and writing their definition/an example sentence for them.



### OTHER IDEAS FOR THE CLASSROOM

Engage auditory, visual, and bodily kinesthetic learners:

- Play recordings of sounds typically heard in the environment to help students imagine what the animals experience
- Display photos of relevant regions, animals, or artifacts on projectors or SmartBoards
- Watch videos of weather reports and news reports of natural disasters
- Display real footage (e.g. online videos) of nature and identify natural elements, animals, etc. in it
- Watch a timelapse of coastline or habitat changes
- Take virtual tour of a museum or exhibition
- Identify the different layers that form the Earth and their characteristics, designing a model to explain the layers of the planet



Engage in project work:

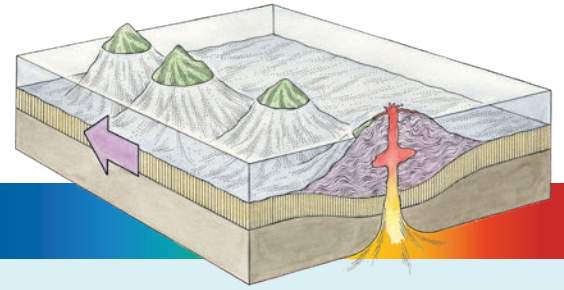
- Write a booklet of fun facts using the content of the book
- Create a virtual bulletin board online with images and facts related to the subject of the book
- Imagine you were a real eyewitness! Write a report, newspaper article, or diary entry about what happened from your perspective. Include information about senses (what you could see, hear, and feel).

## SUBJECT AND TOPIC COVERAGE

Here are some subject and topic groupings that could work for your class:

SUBJECT / TOPIC	EYEWITNESS TITLE
Ancient civilizations	<i>Ancient Egypt, Ancient Rome, Wonders of the World</i>
Animals	<i>Cat, Dinosaur, Fish, Shark</i>
Biodiversity	<i>Climate Change, Fish, Ocean, Shark, The Amazon</i>
Climate	<i>Climate Change, Hurricane &amp; Tornado, Natural Disasters, Ocean, The Amazon, Volcano &amp; Earthquake, Weather</i>
Ecosystems / Nature / Environmental change	<i>Climate Change, Hurricane &amp; Tornado, Natural Disasters, Ocean, Rocks &amp; Minerals, The Amazon, Volcano &amp; Earthquake</i>
Forces acting on structures and mechanisms	<i>Natural Disasters, Titanic, Train, Weather, Wonders of the World</i>
Geography	<i>Ancient Egypt, Ancient Rome, Wonders of the World</i>

### SUBJECT AND TOPIC COVERAGE (CONT'D.)



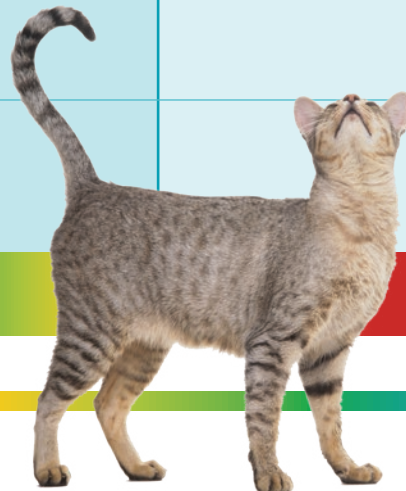
SUBJECT / TOPIC	EYEWITNESS TITLE
Geology	<i>Rocks &amp; Minerals, Volcano &amp; Earthquake</i>
Habitats	<i>Fish, Ocean, Shark, The Amazon</i>
History	<i>American Revolution, Ancient Egypt, Ancient Rome, Civil War, Climate Change, Dinosaur, Natural Disasters, Titanic, Volcano &amp; Earthquake, World War II</i>
Modernization / Industrial Revolution	<i>Train, Titanic</i>
Sea life	<i>Fish, Ocean, Sharks</i>
The amazing world around us	<i>Ocean, The Amazon, Wonders of the World</i>
Transportation	<i>Titanic, Train</i>
War	<i>American Revolution, Civil War, World War II</i>
Weather	<i>Climate Change, Hurricane &amp; Tornado, Natural Disasters, Ocean, Volcano &amp; Earthquake, Weather</i>

### GRADE ALIGNMENT, CURRICULAR LINKS, AND SUGGESTED ACTIVITIES

TITLE	GRADE	CURRICULAR LINKS	CROSS-CURRICULAR LINKS	SUGGESTED ACTIVITY/ USE
<i>Ancient Rome</i>	6	History, Reading informational texts, Social studies	Expository Writing, Creative Writing, Social sciences	Compare and contrast ancient civilizations, Write journal entries from the perspective of student living in that time period
<i>Ocean</i>	6	Science	Geology	Virtual field trip or aquarium field trip
<i>Rocks &amp; Minerals</i>	6	Matter, Rocks and minerals, Science	Science	Identifying and classifying rocks and minerals

### GRADE ALIGNMENT, CURRICULAR LINKS, AND SUGGESTED ACTIVITIES (CONT'D.)

TITLE	GRADE	CURRICULAR LINKS	CROSS-CURRICULAR LINKS	SUGGESTED ACTIVITY/ USE
<i>Train</i>	6	History, Technological advances, Economics, Motion, Force, Vehicles	Maps	Write a diary entry about a train ride or experience Science of motion, vehicle comparisons
<i>Natural Disasters</i>	6-7	History, Science, Reading informational texts	Creative writing, STEAM, science	Write script of media coverage during various natural disasters, then use green screen technology to record, compile, and edit videos
<i>Wonders of the World</i>	6-7	History, Science, Social studies	Geography, History	Research project—choose one to research and create a presentation
<i>American Revolution</i>	6-8	History, Social studies	Geography	Paired texts for historical fiction
<i>Ancient Egypt</i>	6-8	History, Reading informational texts, Social studies, the Bible	Expository writing, Creative writing, Geography, History, Map skills	Compare and contrast ancient civilizations, Write journal entries from the perspective of student living in that time period Bible maps
<i>Cat</i>	6-8	Science		Cat books Compare and contrast with <i>Fish</i> book
<i>Civil War</i>	6-8	History, Social studies	Geography	Map locations of the Civil War
<i>Fish</i>	6-8	Science		Venn diagram of fish Compare and contrast different fish
<i>Shark</i>	6-8	Science		Draw a diagram of a shark Compare and contrast different sharks





### GRADE ALIGNMENT, CURRICULAR LINKS, AND SUGGESTED ACTIVITIES (CONT'D.)

TITLE	GRADE	CURRICULAR LINKS	CROSS-CURRICULAR LINKS	SUGGESTED ACTIVITY/ USE
<i>Volcano &amp; Earthquake</i>	6-8	Science	Before and after sequences, Geology, Math	Read <i>Ranger in Time</i> series Volcanic predictions based on knowledge
<i>Weather</i>	6-8	Science	Patterns	Books and videos about weather
<i>The Amazon</i>	8	Science, Reading informational texts	Interpreting data, Expository writing	Examine and interpret data to describe the role human activities have played in threatening the Amazon
<i>Titanic</i>	8	History, Social studies		Study the <i>Titanic</i> , its history, and artifacts
<i>World War II</i>	8	History, Reading informational texts, Social studies	Expository/creative writing, STEAM, History	Work in teams to record "radio broadcast" to showcase one of the prominent events of WWII  Study nonfiction texts and sources/ research, paired texts with <i>Number the Stars</i> , <i>The Boy in the Striped Pajamas</i> , etc.

