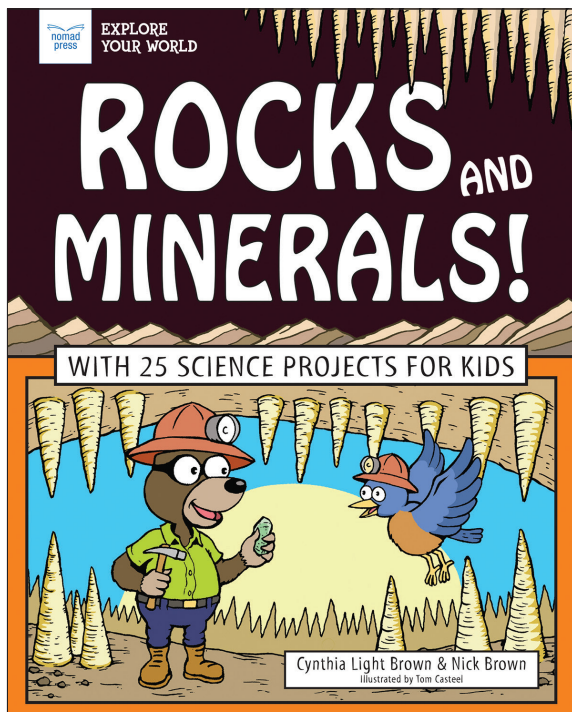




Rocks and Minerals! With 25 Science Projects for Kids

Nomad Press offers concise classroom guides to help educators explore content-related topics with students and encourage them to develop ideas in meaningful ways. Includes Essential Questions and Common Core Connections.

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Age: 7–10
Grade: 3–4
Softcover: 9781619308749, \$14.95
Hardcover: 9781619308718, \$19.95
eBook: all formats available, \$9.99
Specs: 8 x 10, 96 pages, color interior
Focus: Earth/Space Science | Environmental Science
GRL: T

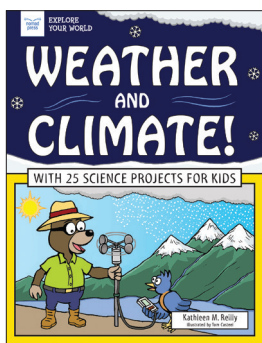
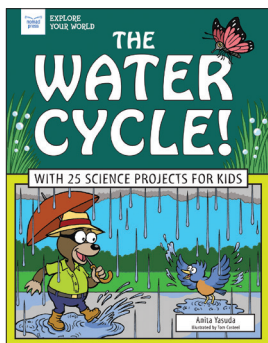
Everyone knows what a rock is, but do you know what a rock is made of? And how it was made? And what it's good for?

Rocks and Minerals! With 25 Science Projects for Kids invites kids ages 7 to 10 on a tour of the fascinating world of the geological forces that create and transform rocks, including the life cycle of igneous, sedimentary, and metamorphic rocks and what they can tell us about the earth. *Rocks and Minerals!* also explores fossils, and how they come to exist and are discovered. Entertaining cartoon illustrations and photographs, along with fascinating sidebars, essential questions, links to online resources, and more illuminate the topic and bring it to life.

Rocks and Minerals! With 25 Science Projects for Kids is part of a set of four Explore Earth Science books that explore the earth, the atmosphere, and everything in between.

Learn more about *Rocks and Minerals!* at nomadpress.net/nomadpress-books/rocks-and-minerals-with-25-science-projects-for-kids/

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ESSENTIAL QUESTIONS TO ASK

KEY VOCABULARY

adapt, climate change,
earthquake, extinction,
geologist, sediment, tectonic
plates, volcano

BEFORE READING

- 1 **Establish Background Knowledge**
 - a Where can you find some rocks and minerals to study?
 - b Why is it important to know about rocks and minerals, how they formed, and what benefit they offer people and animals?
- 2 **Skill Introduction**
 - a What do you do when you come to a word or phrase you do not know?
 - b How do photographs and videos help someone learn about a topic?

CCC: CCSS.ELA-Literacy.L.5.5c Use the relationship between particular words (e.g., synonyms, antonyms, homographs) to better understand each of the words.

DURING READING

- 1 **Check for Understanding**
 - a How do we use rocks in our everyday life?
 - b What is the connection between climate change and geology?
 - c Why don't we usually notice when rocks break down and form new rocks?
 - d What is the connection between minerals and your own health?

CCC: CCSS.ELA-Literacy.L.5.4b Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., photograph, photosynthesis).

CCC: CCSS.ELA-Literacy.SL.5.2 Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.



Check out pictures of minerals and gems at the Smithsonian National Museum of Natural History. What makes them beautiful to us?

<https://geogallery.si.edu/gems>



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ESSENTIAL QUESTIONS TO ASK

AFTER READING

1 Summary and Expansion

- a How does movement on the surface and deep inside the earth create new rocks?
- b What makes one type of mineral different from another?
- c What is the difference between rocks and minerals?
- d How do igneous rocks form?
- e Why do sedimentary rocks usually have layers?
- f What are rocks used for in our world?
- g In what kinds of rocks do we usually find fossils? How do the rocks help scientists figure out how old the fossils are and what kind of organism they came from?
- h What kinds of properties do scientists look for to identify different types of rocks and minerals?

CCC: CCSS.ELA-Literacy.SL.5.1c Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.

CCC: CCSS.ELA-Literacy.RI.5.3 Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.

CCC: CCSS.ELA-Literacy.RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.

CCC: CCSS.ELA-Literacy.RI.5.9 Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.

COMMON CORE CONNECTIONS

Grade: 5 Language CCSS.ELA-Literacy.L.5.3,4,4a,4b,4c,5,5a,5c,6

Grade: 5 Reading: Foundation Skills CCSS.ELA-Literacy.RF.5.3,3a,4,4a,4c

Grade: 5 Reading: Informational Text CCSS.ELA-Literacy.RI.5.1,2,3,4,5,6,7,8,9,10

Grade: 5 Speaking & Listening CCSS.ELA-Literacy.SL.5.1,1c,1d,2,3,4,5,6

Grade: 5 Writing CCSS.ELA-Literacy.W.5.2,3,4,6,7,8,9,9b,10



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COMMON CORE CONNECTIONS

Grade: 5 Language

CCSS.ELA-Literacy.L.5.3,4,4a,4b,4c,5,5a,5c,6

3 Use knowledge of language and its conventions when writing, speaking, reading, or listening.

4 Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 5 reading and content, choosing flexibly from a range of strategies.

4a Use context (e.g., cause/effect relationships and comparisons in text) as a clue to the meaning of a word or phrase.

4b Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., photograph, photosynthesis).

4c Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.

5 Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.

5a Interpret figurative language, including similes and metaphors, in context.

5c Use the relationship between particular words (e.g., synonyms, antonyms, homographs) to better understand each of the words.

6 Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships (e.g., however, although, nevertheless, similarly, moreover, in addition).

Grade: 5 Reading: Foundation Skills

CCSS.ELA-Literacy.RF.5.3,3a,4,4a,4c

3 Know and apply grade-level phonics and word analysis skills in decoding words.

3a Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.

4 Read with sufficient accuracy and fluency to support comprehension.

4a Read grade-level text with purpose and understanding.

4c Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

Grade: 5 Reading: Informational Text

CCSS.ELA-Literacy.RI.5.1,2,3,4,5,6,7,8,9,10

1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.

2 Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.

3 Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.

4 Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area.

5 Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in two or more texts.

6 Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.

7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.

8 Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).

9 Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.

10 By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 4–5 text complexity band independently and proficiently.



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COMMON CORE CONNECTIONS

Grade: 5 Speaking & Listening

CCSS.ELA-Literacy.SL.5.1,1c,1d,2,3,4,5,6

1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.

1c Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.

1d Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.

2 Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

3 Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.

4 Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

5 Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.

6 Adapt speech to a variety of contexts and tasks, using formal English when appropriate to task and situation. (See grade 5 Language standards 1 and 3 here for specific expectations.)

Grade: 5 Writing

CCSS.ELA-Literacy.W.5.2,3,4,6,7,8,9,9b,10

2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

3 Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.

4 Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)

6 With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of two pages in a single sitting.

7 Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.

8 Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.

9 Draw evidence from literary or informational texts to support analysis, reflection, and research.

9b Apply grade 5 Reading standards to informational texts (e.g., "Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point[s]").

10 Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.



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ACTIVITY!

PROJECT!

MAKE A CRYSTAL GEODE

Geodes are hollow rocks that contain crystals inside. Try making your own geodes!

1 Gently crack the eggs in half. Pull apart the two sides of the eggshell and dispose of the inside. Gently wash the inside of the eggshell and let dry. Wash your hands thoroughly to remove any raw egg.

2 When the eggshells are dry, use the Q-tip to spread a thin layer of glue on the inside of the eggshells. Sprinkle alum powder onto the glue until the glue is covered in powder. Let dry overnight.

3 Pour about one cup hot tap water into a cup. Add a spoonful of alum and stir to dissolve. Keep adding alum a spoonful at a time until it stops dissolving; it should hold several tablespoons. Add a few drops of food coloring.

4 Place an eggshell half into the solution so that the eggshell is submerged and the opening is facing up. Repeat with more eggshells and solution if desired.

5 Set in a place it won't be disturbed and cover with a cloth. Leave it overnight or longer. Remove the eggshell and let dry.

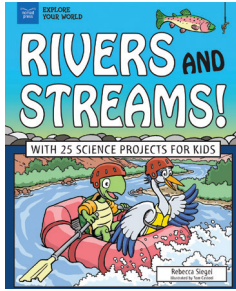
SUPPLIES

- * eggs
- * glue
- * brush or Q-tip
- * hot water
- * cup
- * alum powder (found in the grocery store with spices)
- * food coloring

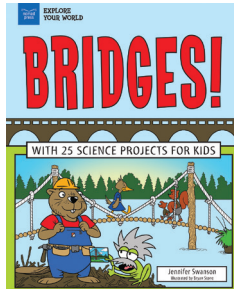
TAKE IT FURTHER! Try this again, but put the cup into the refrigerator to let the crystals form. How does it change the crystals that grow? Does this tell you anything about what kind of environment is best for very large crystals to grow?

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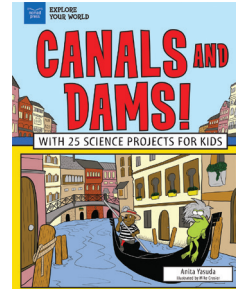
More Science Books!



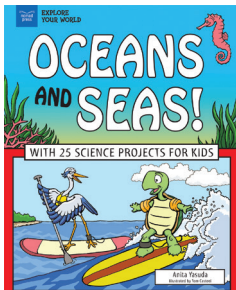
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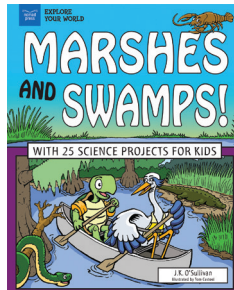
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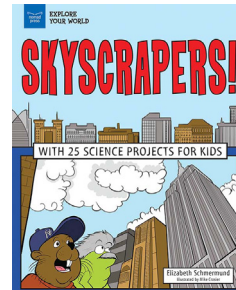
Author: Anita Yasuda



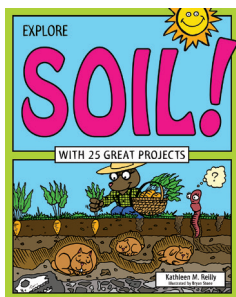
Author: Andi Diehn



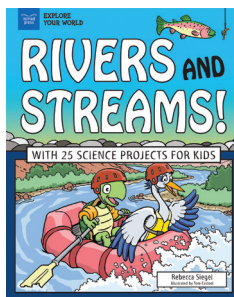
Author: Alicia Klepeis



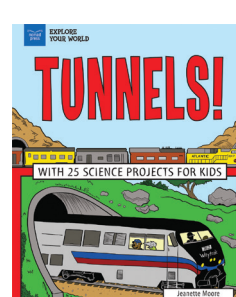
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Author: Anita Yasuda



Author: Carmella Van Vleet



Author: Maxine Anderson

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