

Landform Lab: Modeling Earth's Ever-Changing Surface (K–5)

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2nd Grade



Matter



Ecosystem Diversity



Earth Materials

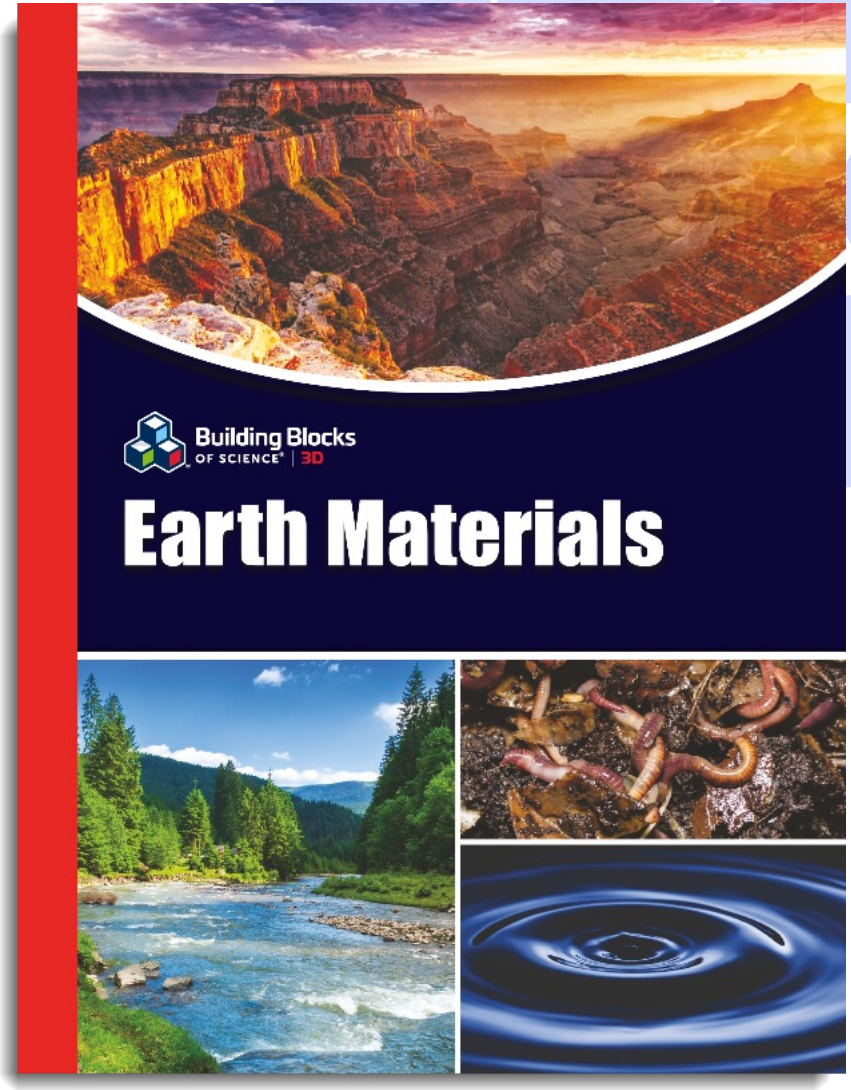
CAROLINA UNLEASH LEARNING

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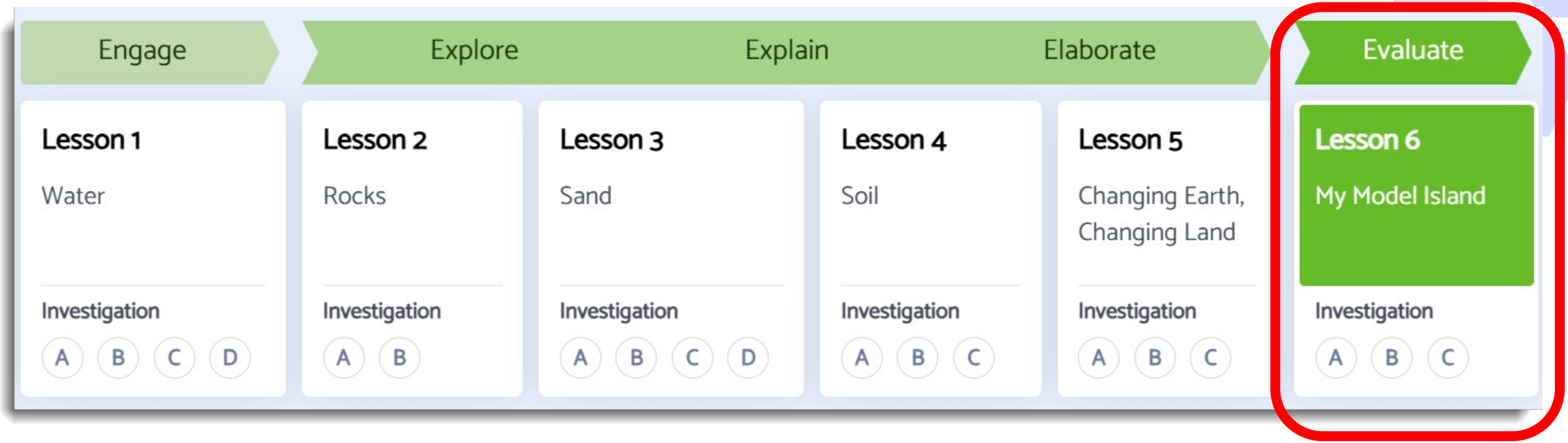
ANCHORING PHENOMENON

The surface of Earth is constantly changing. The results of these changes usually take a long time to become noticeable, but some agents of change, such as volcanoes and floods, cause land to change more quickly. The anchoring phenomenon in *Earth Materials* is how natural materials such as water, minerals, rocks, and soil are important parts of Earth's surface.



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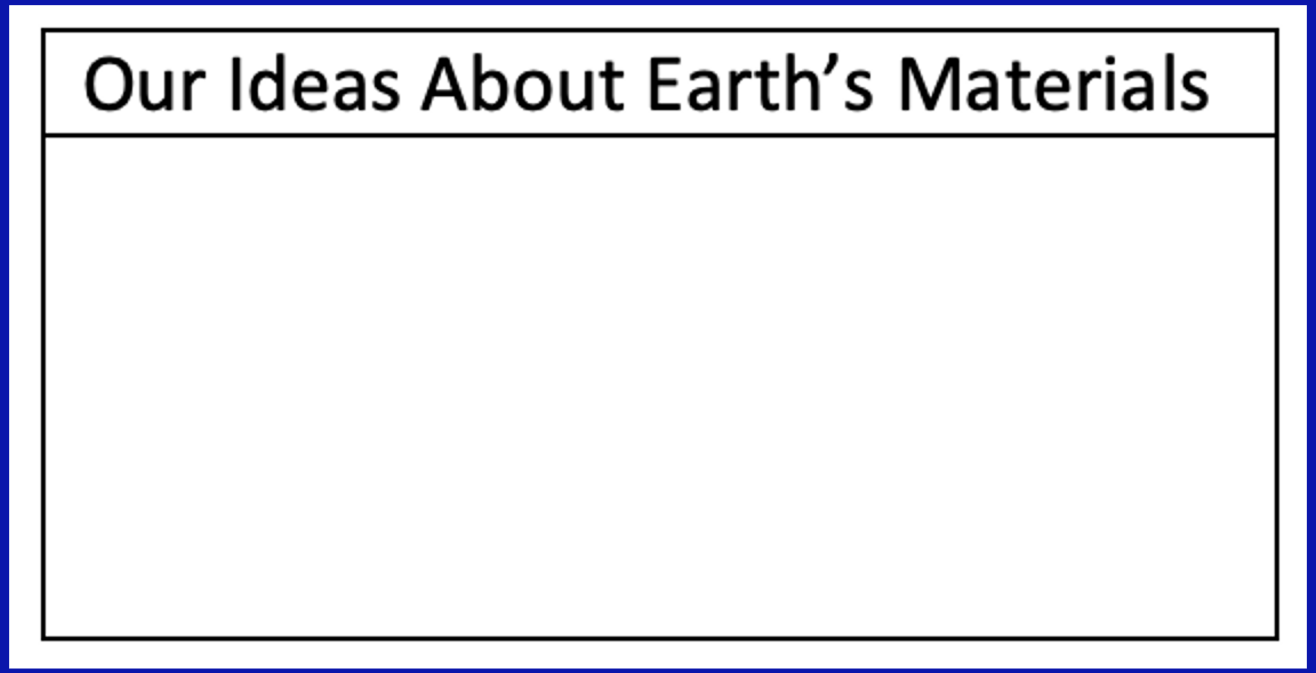


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Lesson 1: Water

What do you know about Earth’s materials?



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Where's the Water?

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Sensemaking

Have you ever seen an ocean?



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Sensemaking

What color on this globe do you think represents water?



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Sensemaking

What lakes do we have in our area?



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Sensemaking

Can you name any rivers in our area?



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Sensemaking

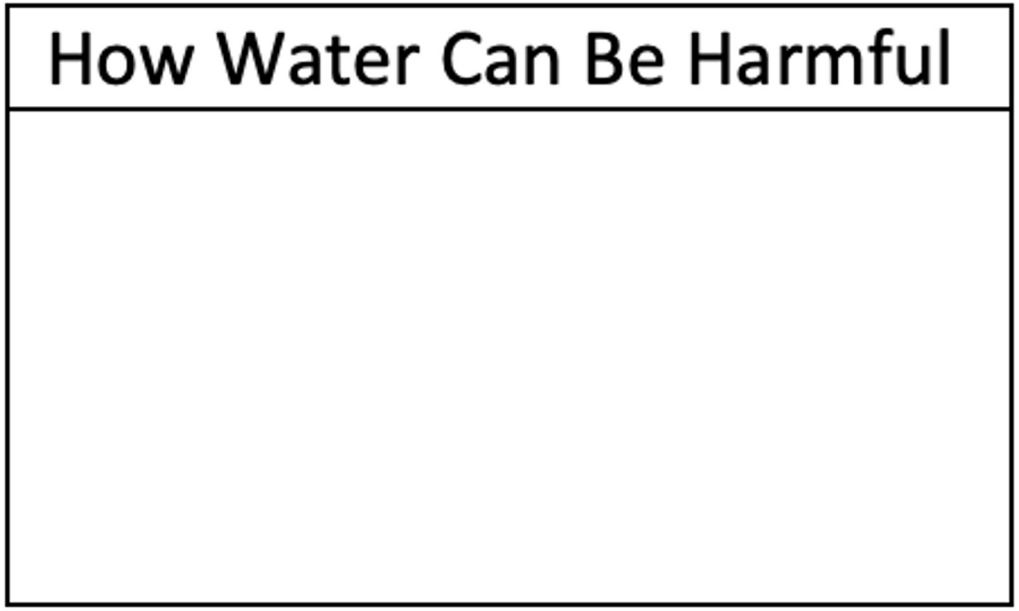
Have you ever seen a glacier?



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Class Discussion

When can water be harmful?



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Sensemaking

- Where do you think the water in rivers and lakes comes from?





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Class Discussion

- Have you ever seen or visited a mountain?
- What color on the map or globe do you think represents mountains?



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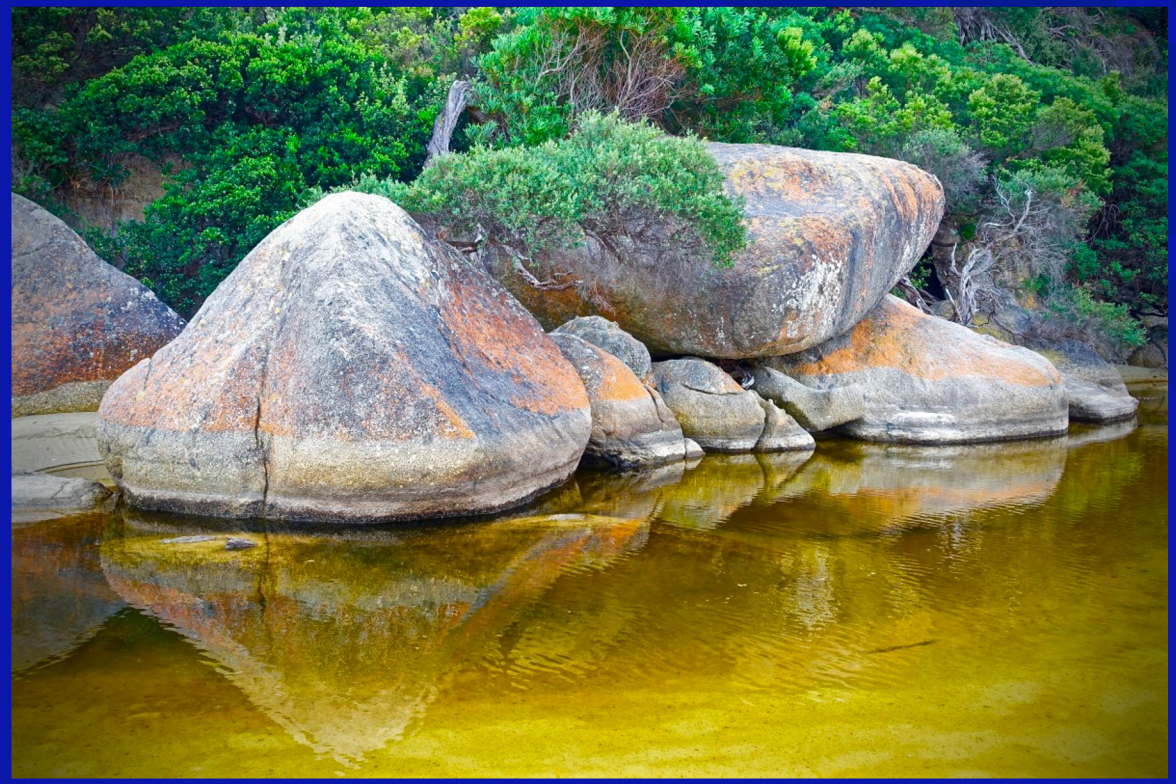


How Much of Earth Is Water and How Much Is Land?

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Lesson 2: Rocks

You have seen pictures of mountains, creeks, and streams. They all have one thing in common: rocks. Big rocks, small rocks, rocks of different shapes and colors.



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Sensemaking








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Class Discussion

- What do you think the landforms in these pictures are composed of?
- What are similarities among these pictures?
- What difference are there between these pictures?
- What interesting things do you observe?



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Sensemaking

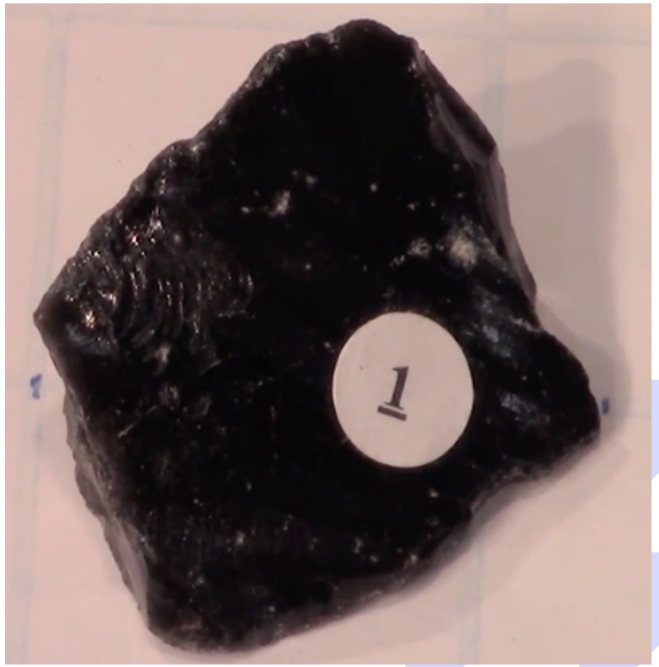
- Weathering is when rocks are broken down into smaller pieces by water, ice, or wind.
- Erosion moves weathered pieces of rock to other places.
- This process of wearing away rock and moving it to different places helps shape the land.



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Sensemaking

- What is this?
- Rocks are solid natural objects that make up most of the solid part of the Earth.
- Mineral
- Rocks are made up of two or more minerals, or solid objects that form crystals.



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Lesson 3: Sand

Guess which of Earth's materials I am describing. You may have seen this material on the playground, maybe in art class, or perhaps when you were on vacation. If you live near a desert or a beach, you might see this material often. It is made of small grains and can feel gritty.



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What Can We Learn by Studying Sand?

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Vocabulary

Weathering: When rocks are broken down into smaller pieces by water, ice, or wind.

Erosion: The movement of sand, soil, or rock from one place to another, often by water, ice, or wind.



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Lesson 3, Investigation D



Can We Design a Barrier to Reduce Wind Erosion?

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Sensemaking



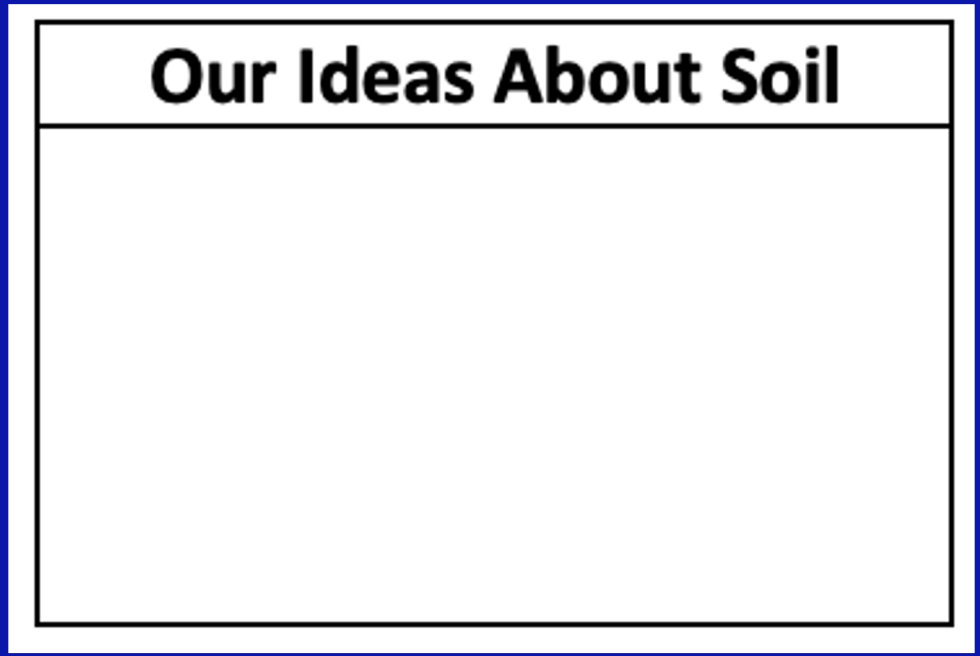
- What effect can wind have on sand and sand landforms?
- What happened to the sand when you blew on it through the straw?
- What are some things that people could use to slow the effect of erosion on sand dunes?
- Why would people want to slow the effect of erosion on sand dunes?

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Lesson 4: Soil

What do you know about soil?



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Lesson 4

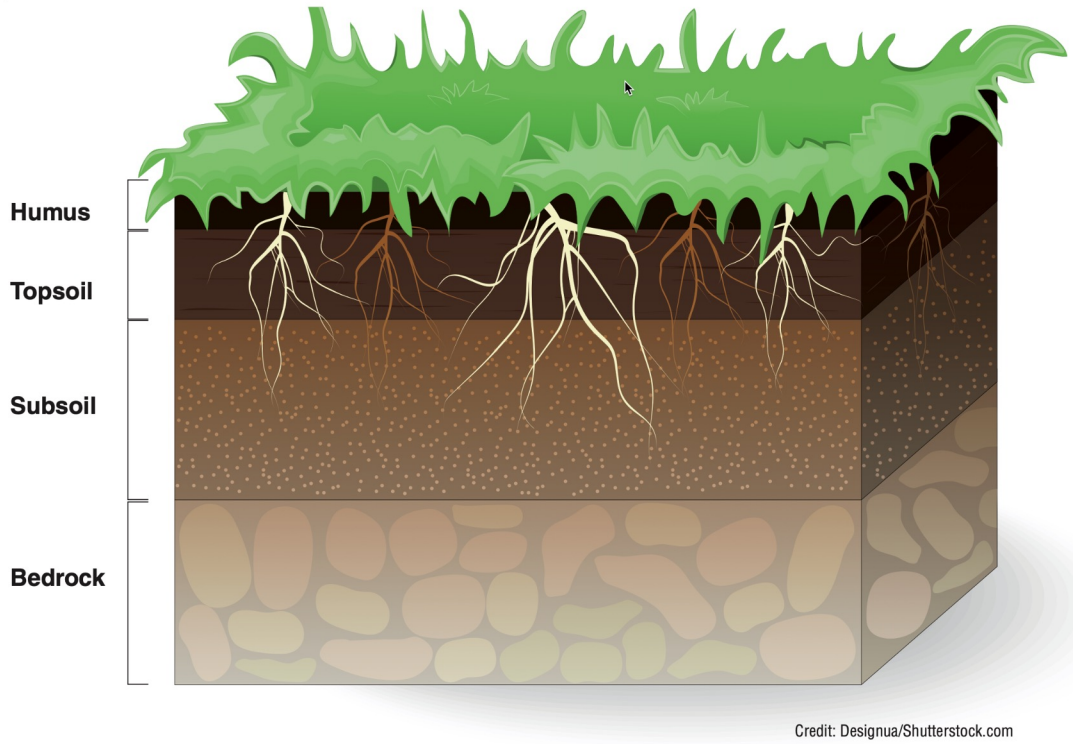


What Makes Up Soil?

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Sensemaking

Depending on where it is from, soil can be composed of small particles of rock, sand, clay, humus, air, and water.



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Lesson 5: Changing Earth, Changing Land (Glaciers)

Glaciers are large masses of ice, found both on land and adjacent to water. Glaciers create and shape landforms.



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Vocabulary

Deposition: the settling of rocks, sand, and soil after erosion that causes new landforms.

Changes to the Land

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Investigation

You will investigate how a glacier can change the land.



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Lesson 6, Investigation A



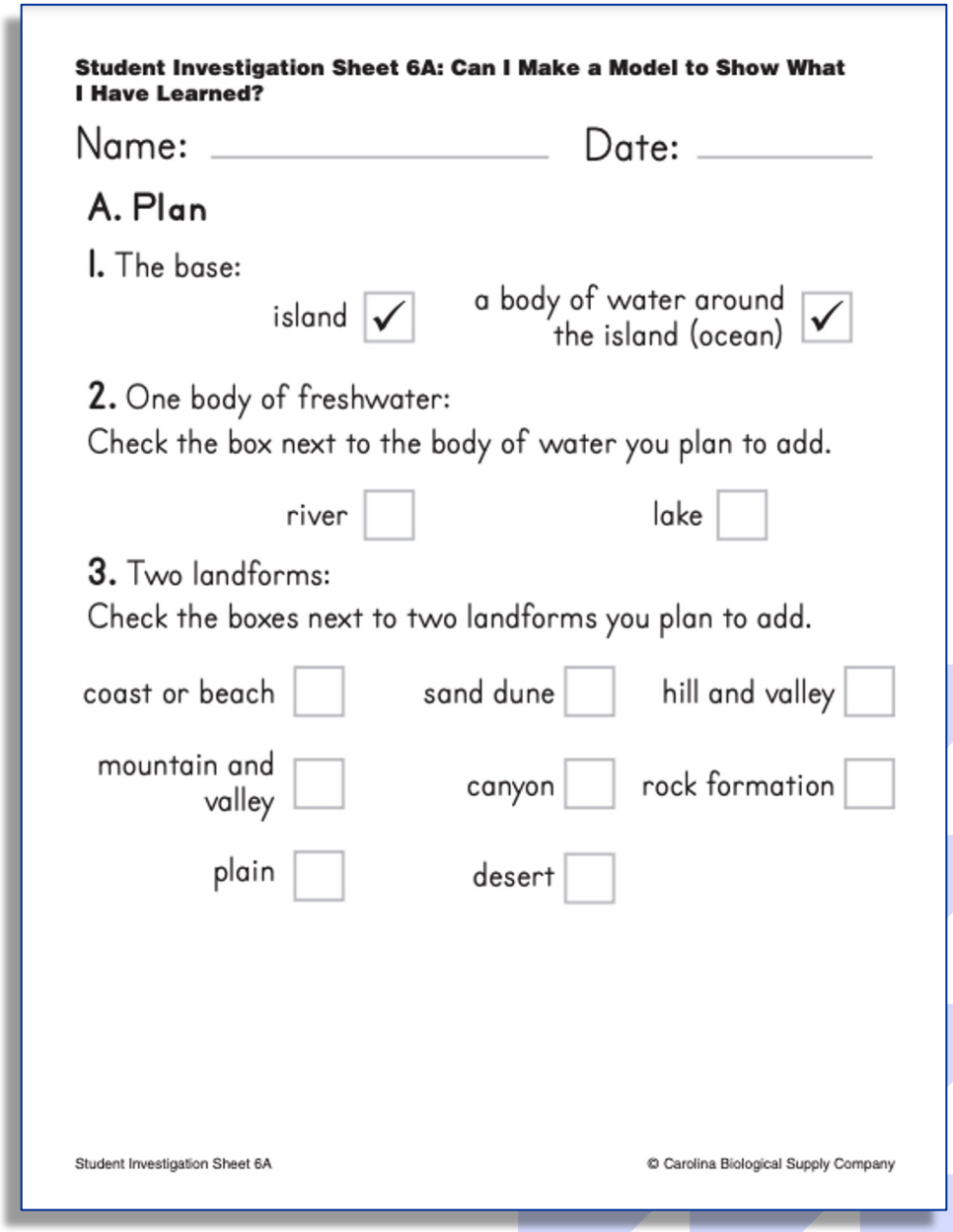
Can I Make a Model to Show What I Have Learned?

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Investigation

You will each design and build a model of the new island described in the Investigative Phenomenon for this lesson.

The island should include landforms and bodies of water.



Student Investigation Sheet 6A: Can I Make a Model to Show What I Have Learned?

Name: _____ Date: _____

A. Plan

1. The base:

island ☑ a body of water around the island (ocean) ☑

2. One body of freshwater:

Check the box next to the body of water you plan to add.

river ☐ lake ☐

3. Two landforms:

Check the boxes next to two landforms you plan to add.

coast or beach ☐ sand dune ☐ hill and valley ☐

mountain and valley ☐ canyon ☐ rock formation ☐

plain ☐ desert ☐

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Procedure

The plate will represent Earth's crust (the base of your model).

Any dough you use will be placed on the plate to form the island and its landforms.

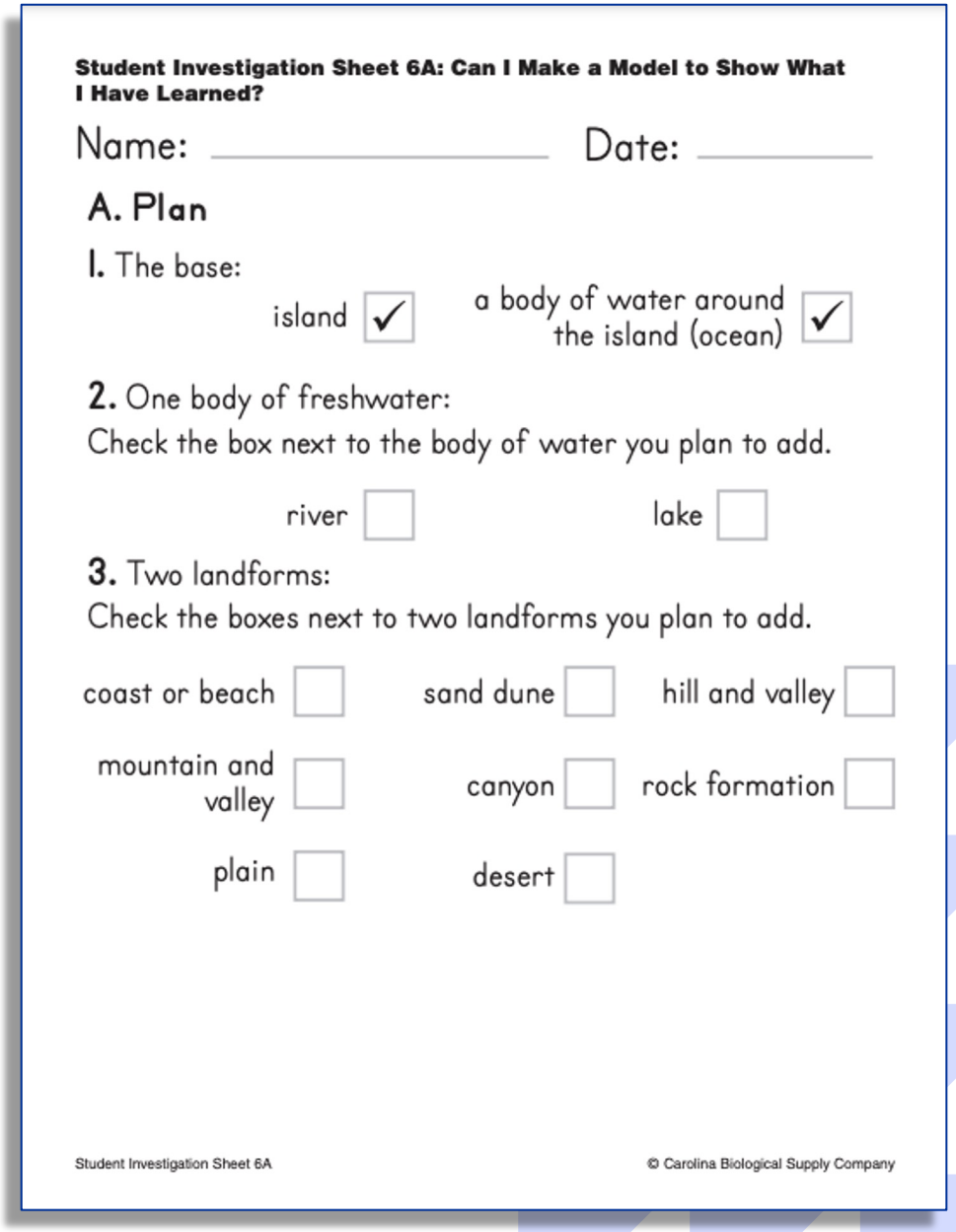
You will have some additional materials.



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Procedure

- In addition to the island in the ocean, each model will need one body of freshwater and two landforms.
- Complete Steps 1–3 of Part A of the investigation sheet by selecting a body of water and two landforms.



Student Investigation Sheet 6A: Can I Make a Model to Show What I Have Learned?

Name: _____ Date: _____

A. Plan

1. The base:

island ☑ a body of water around the island (ocean) ☑

2. One body of freshwater:

Check the box next to the body of water you plan to add.

river ☐ lake ☐

3. Two landforms:

Check the boxes next to two landforms you plan to add.

coast or beach ☐ sand dune ☐ hill and valley ☐

mountain and valley ☐ canyon ☐ rock formation ☐

plain ☐ desert ☐

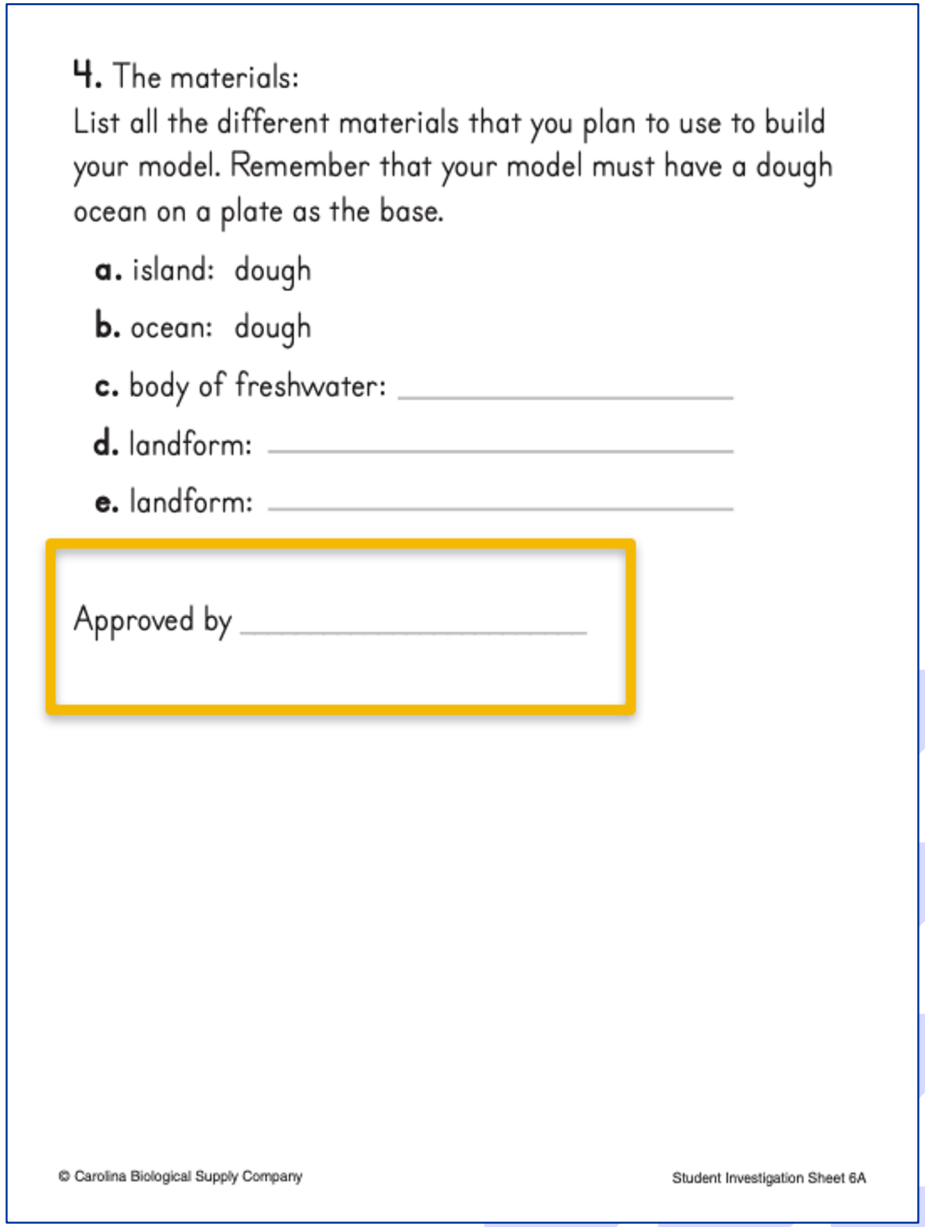
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Procedure

- Visit the distribution center to look at the additional materials available for your model.
- List the materials you want to use to build your model in Part A, Step 4, of the investigation sheet.

Do not go any further until you have my signature.



4. The materials:
List all the different materials that you plan to use to build your model. Remember that your model must have a dough ocean on a plate as the base.

a. island: dough

b. ocean: dough

c. body of freshwater: _____

d. landform: _____

e. landform: _____

Approved by _____

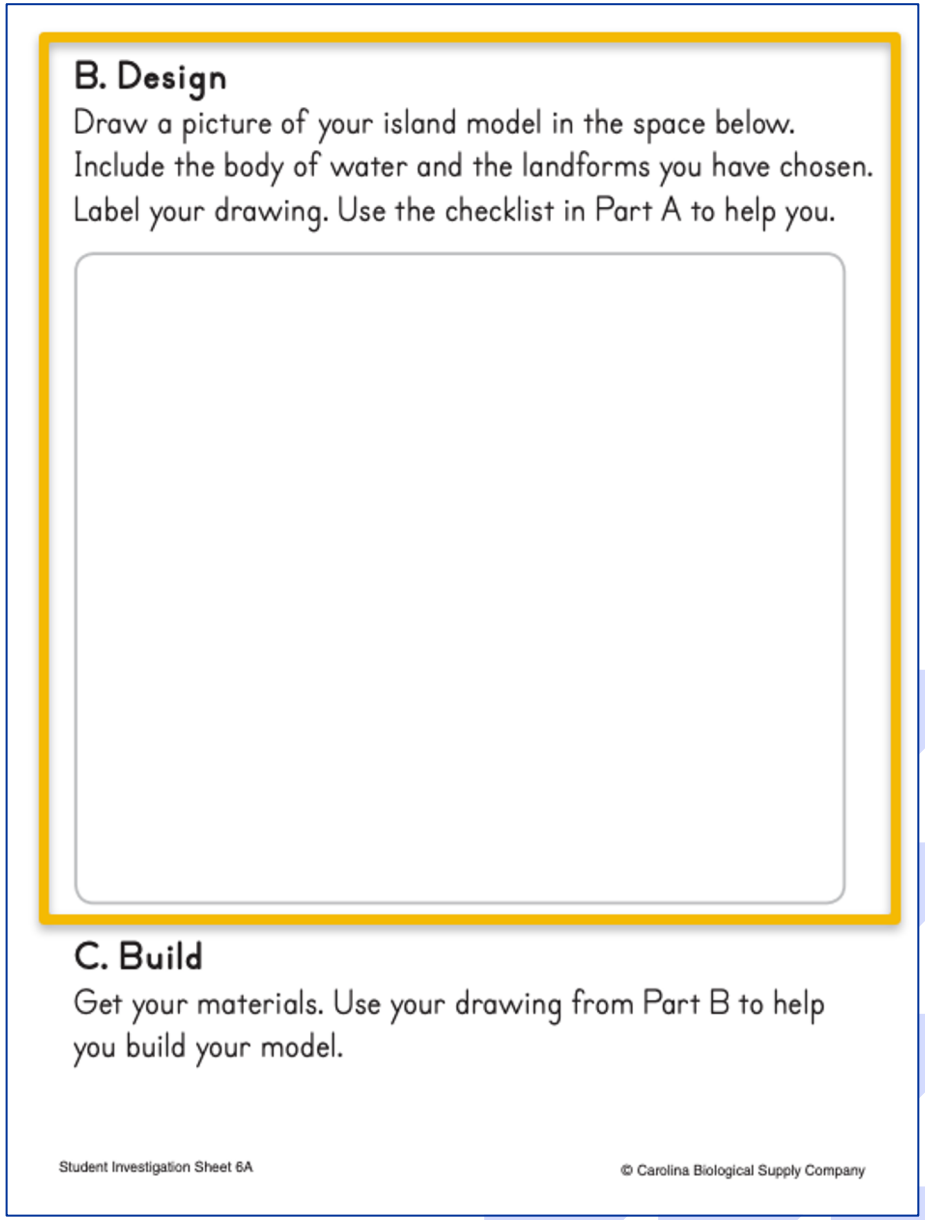
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Procedure

- Does everyone have my approval?
- Draw a picture of the plan for your model in Part B.



B. Design

Draw a picture of your island model in the space below. Include the body of water and the landforms you have chosen. Label your drawing. Use the checklist in Part A to help you.

C. Build

Get your materials. Use your drawing from Part B to help you build your model.

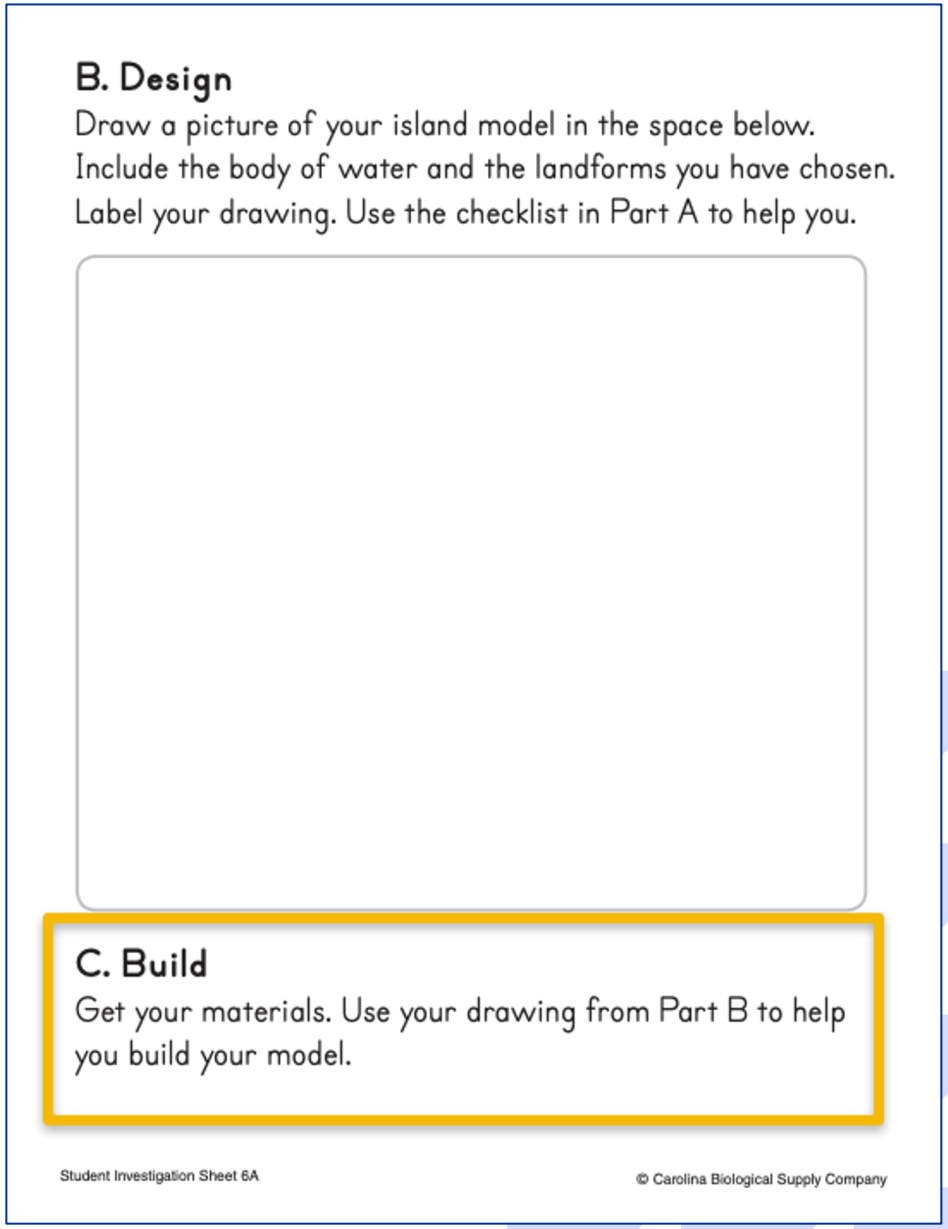
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Procedure

You may now collect your materials and build your model following your plan.



B. Design

Draw a picture of your island model in the space below. Include the body of water and the landforms you have chosen. Label your drawing. Use the checklist in Part A to help you.

C. Build

Get your materials. Use your drawing from Part B to help you build your model.

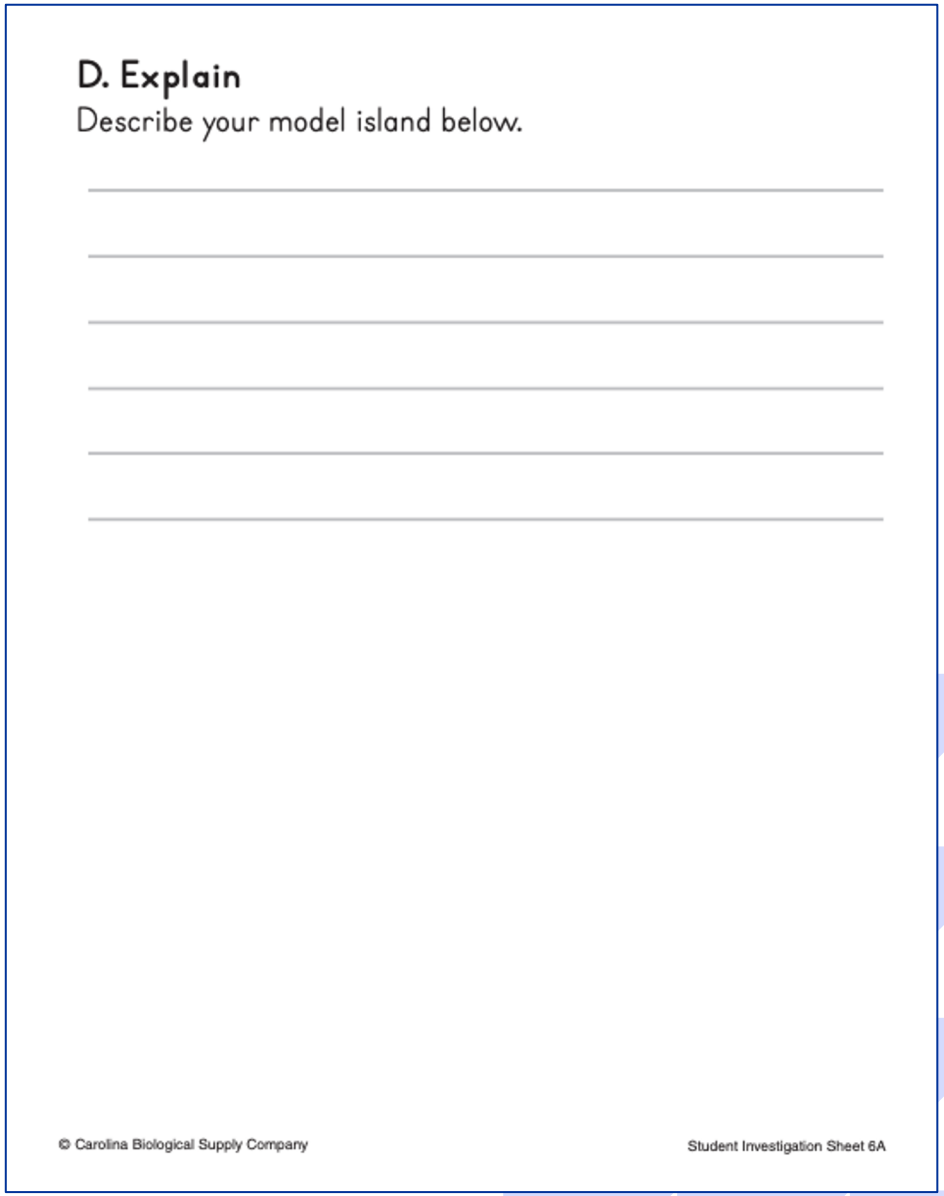
Student Investigation Sheet 6A

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Procedure

Complete Part D of the investigation sheet by writing a description of the completed model.



D. Explain

Describe your model island below.

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Procedure

- Write your name on the index card.
- Take their model and card to the designated location.
- Display your model next to your name card.
- Return any extra materials to the distribution center.



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Lesson 6: My Model Island



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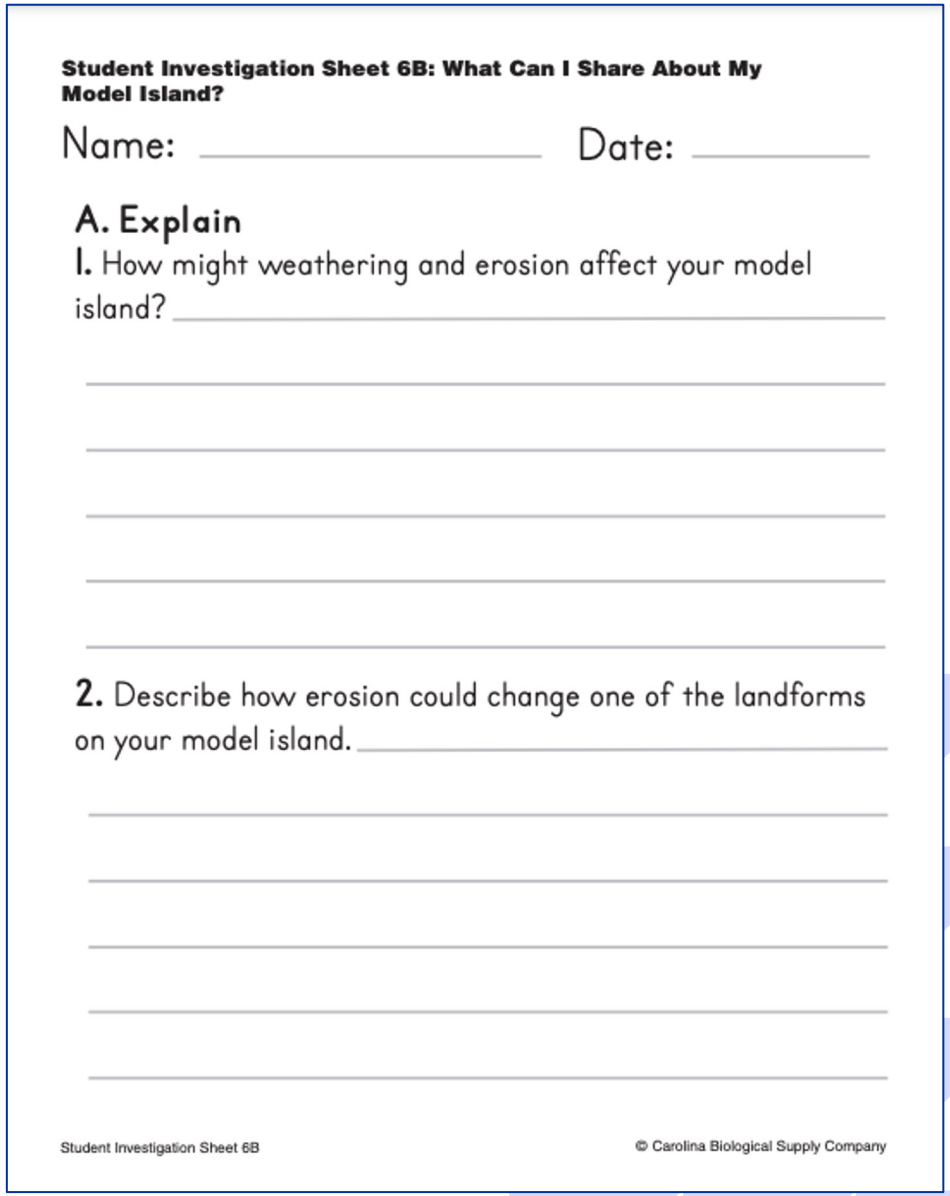


What Can I Share About My Model Island?

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Investigation

- Use what you have learned about the materials that make up Earth's surface to describe how erosion could affect one of your model's landforms.



Student Investigation Sheet 6B: What Can I Share About My Model Island?

Name: _____ Date: _____

A. Explain

1. How might weathering and erosion affect your model island? _____

2. Describe how erosion could change one of the landforms on your model island. _____

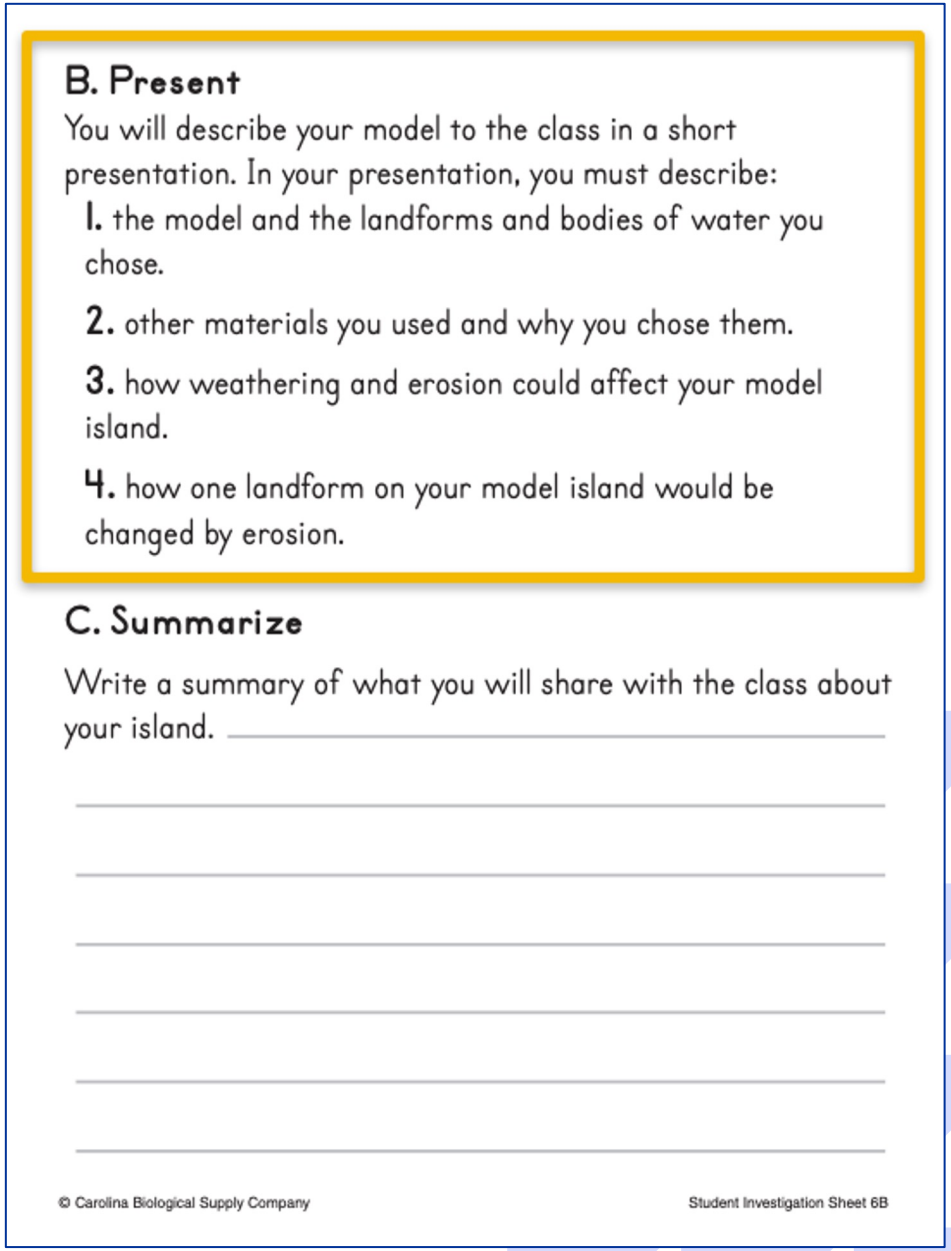
Student Investigation Sheet 6B

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Procedure

- You will give a 2–3 minute presentation about your model island to your classmates.



B. Present

You will describe your model to the class in a short presentation. In your presentation, you must describe:

1. the model and the landforms and bodies of water you chose.
2. other materials you used and why you chose them.
3. how weathering and erosion could affect your model island.
4. how one landform on your model island would be changed by erosion.

C. Summarize

Write a summary of what you will share with the class about your island.

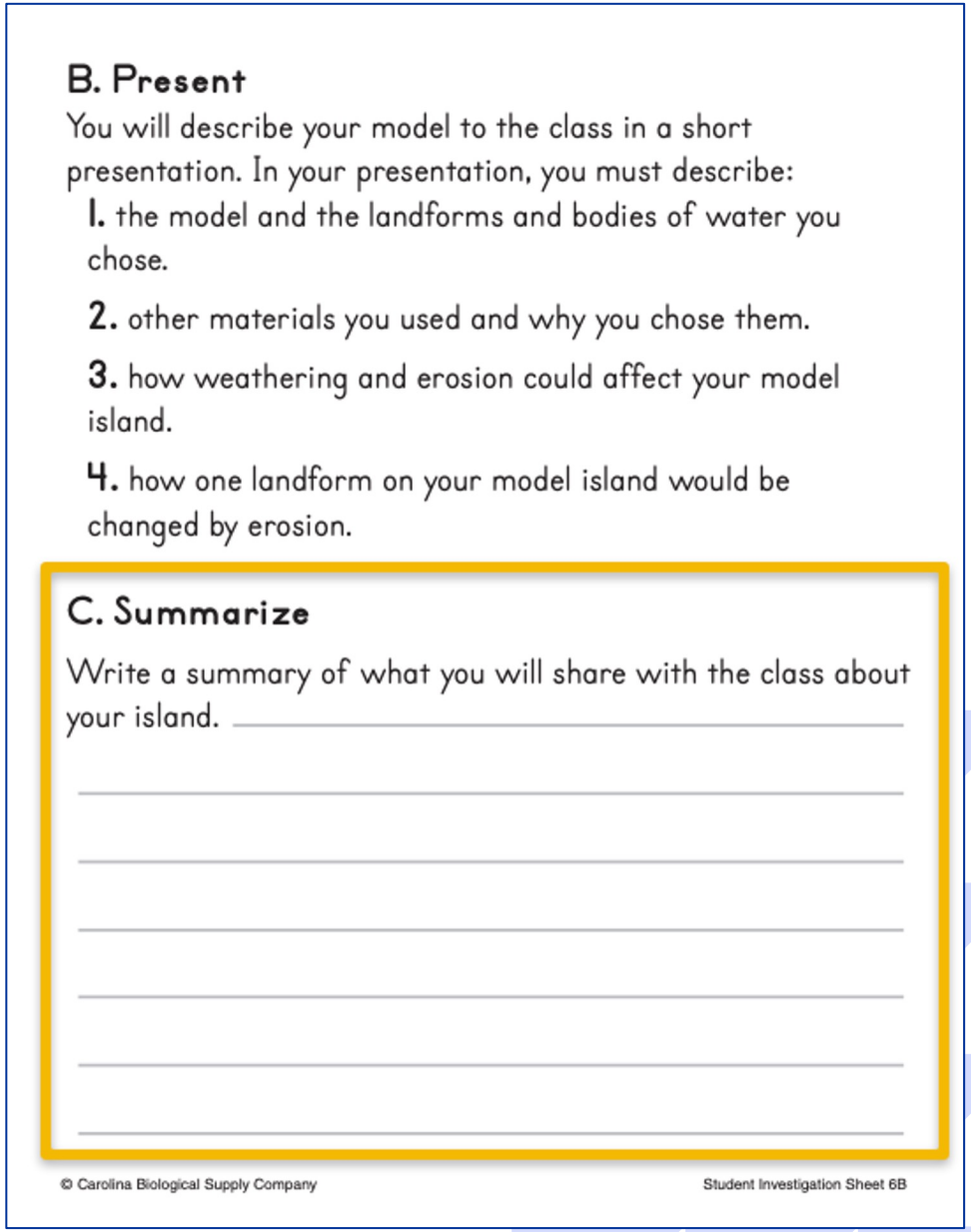
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Procedure

- Plan for your presentation by writing a summary of what you want to share in Part C of the investigation sheet.



B. Present

You will describe your model to the class in a short presentation. In your presentation, you must describe:

1. the model and the landforms and bodies of water you chose.
2. other materials you used and why you chose them.
3. how weathering and erosion could affect your model island.
4. how one landform on your model island would be changed by erosion.

C. Summarize

Write a summary of what you will share with the class about your island. _____

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Procedure

- Listen actively as your classmates present.
- You will be able to ask questions at the end of each presentation.

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What Have I Learned About Earth's Materials?

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Reflection

We are going to compare what we knew when we started the unit to what we know now.

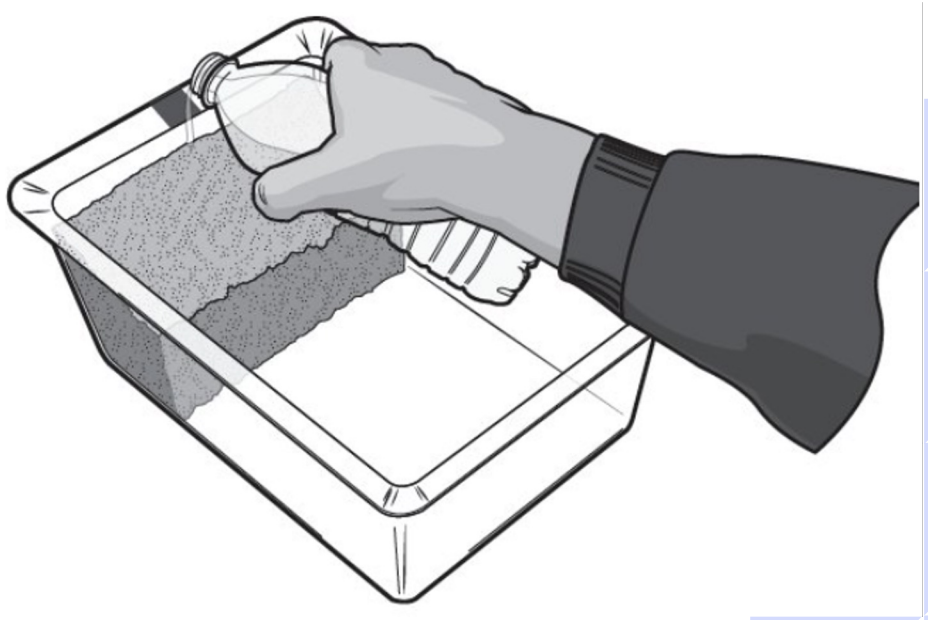
Our Ideas About Earth's Materials

What We Know About Earth's Materials

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Class Discussion

- What are the materials we have learned about that make up Earth's surface?
- How does the amount of saltwater compare to the amount of freshwater on Earth?
- Define "weathering."
- Define "erosion."
- How does sand form?
- How does soil form?



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Phenomenon

Off the south coast of Hawaii, a volcano is erupting underwater and forming new land. You have the ability to travel thousands of years into the future, and when you arrive, you see that there is a new island.



What do you know now?

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Learning Framework

Kindergarten	Push, Pull, Go	Living Things and Their Needs	Weather and Sky
1st Grade	Light and Sound Waves	Exploring Organisms	Sky Watchers
2nd Grade	Matter	Ecosystem Diversity	Earth Materials
3rd Grade	Forces and Interactions	Life in Ecosystems	Weather and Climate Patterns
4th Grade	Energy Works	Plant and Animal Structures	Changing Earth
5th Grade	Structure and Properties of Matter	Matter and Energy in Ecosystems	Earth and Space Systems

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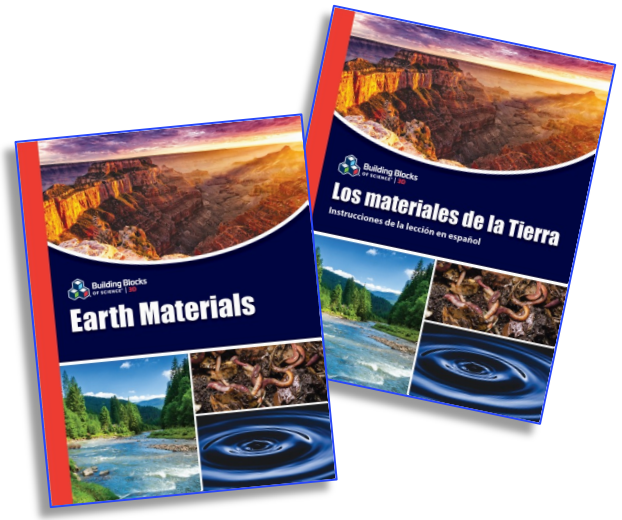
18 scaffolded units K–5

Physical | Life | Earth

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Hands-On | Print | Digital

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