

Ask and Answer Questions

One way to be sure you understand a science text is to ask and answer questions about the information. You can ask a question such as, *Why does this happen?* Then look for information in the text to help you answer the question.



Find Text Evidence

You might ask *How do rocks change?* when you read the first paragraph of “Patterns of Change” on page 195. As you read, you can look for answers to your question.

page 195

Rock Solid

“Solid as a rock” is a saying often used to describe something that’s reliable, that doesn’t change. But, in fact, rocks do change. The effects of water, wind, and temperature over long periods of time slowly transform one type of rock into another type of rock. These same forces also shape awe-inspiring landscapes and sketch designs on rock. Nature’s patterns are **visible** in some rocks as small as pebbles and in wonders as vast as the Grand Canyon.

The photograph across these pages shows one example of nature’s art. This **structure** of rock, known as the Wave **formation**, is made of sandstone. It is sand turned to rock over a long period of time.

The text explains that water, wind, and temperature over long periods of time can change one type of rock into another type. They can also shape landscapes and sketch designs on rock.

Your Turn

COLLABORATE



Ask and answer a question about the information in the section “Igneous Rocks” on page 195. As you read, use the strategy Ask and Answer Questions.

Main Idea and Key Details

Most texts have an overall **main idea**. This is what the writer most wants you to know about a topic. Often, each paragraph or section of text will also have a main idea. **Key details** support the main idea.



Find Text Evidence

After I read "Sedimentary Rocks" on page 196, I see the main idea is that different particles form sedimentary rocks. Key details in the first, second, and third paragraphs support this.

Main Idea

Particles such as sand or bones and shells form different sedimentary rocks.

Detail

Wind and water carry away rock particles.

Detail

Particles collect in layers and are pressed together.

Detail

Sedimentary rocks are made from the pressed particles.

Your Turn

COLLABORATE



Reread "Rock Formations" on page 196. Use key details to find the main idea of this section.

Go Digital!

Use the interactive graphic organizer

Expository Text

The selection “Patterns of Change” is expository text.

Expository text:

- Explains a topic with reasons and evidence
- Supports reasons and evidence with facts, examples, and concrete details
- May include text features, such as diagrams or time lines



Find Text Evidence

I can tell “Patterns of Change” is expository text. It provides evidence and gives reasons why patterns occur, supporting these with facts and concrete details. A diagram illustrates information.

page 197

The Rock Cycle

Still, rocks continue to change. There is a third type of rock below the earth’s surface, called metamorphic rock. These rocks are pressed down upon by the layers of rock above them. At the same time, they are heated by the magma beneath them. Eventually, the heat will cause some metamorphic rock to melt and become magma.

As the magma slowly cools, it will turn back into igneous rock. The **repetition** of this process is called the rock cycle. The rock cycle is a pattern—a pattern of change that repeats and continues. It transforms liquid rock into a solid substance. It builds cliffs from sand and bones. And it returns rock to liquid form.

Make Connections

Talk about the patterns you can find in sedimentary rocks. Where do you see these patterns? **ESSENTIAL QUESTION**

Compare the patterns of change in rocks with other patterns you have seen. **TEXT TO SELF**

Diagram A diagram help readers visualize information. Read the title, callouts, and labels. Then study the way information is arranged, paying attention to the direction in which arrows point.

COLLABORATE



Your Turn

With a partner, describe the rock cycle. Begin with magma or lava. Following the arrows, explain how the molten rock changes.

Greek Roots

If you know the meaning of a word's root, you can use it as a clue to figure out the meaning of an unfamiliar word. Some roots from ancient Greek are *geo*, which means "earth"; *logy*, which means "study"; *chrono*, which means "time"; *bio*, which means "life"; and *morph*, which means "form."



Find Text Evidence

I'm not sure what geologists means on page 196 of "Patterns of Change." I know that geo means "earth" and logy means "study." The phrase who study rocks also helps me figure out that geologists means "someone who studies the earth."

Over time, a layer can be created entirely of one kind of sedimentary rock. **Geologists** who study rocks call a layer made of the same material and at about the same time a *stratum*.



Your Turn

COLLABORATE



Use what you know about Greek roots, along with other sentence clues, to figure out the meaning of the following words.

biological, page 196

chronology, page 196

metamorphic, page 197



Readers to . . .

Writers support their ideas with **relevant evidence**. The evidence may include facts, definitions, concrete details, and examples. Reread the paragraph below from “Patterns of Change.” Notice how concrete details and examples support the main idea of the paragraph.

Expert Model

Ideas

Relevant Evidence

Identify the main idea of the paragraph. What reasons and evidence does the writer use for support?

The effects of water, wind, and temperature over long periods of time slowly transform one type of rock into another type of rock. These same forces also shape awe-inspiring landscapes and sketch designs on rock. Nature’s patterns are **visible** in some rocks as small as pebbles and in wonders as vast as the Grand Canyon.



Writers



Jeff wrote an expository text about photographing patterns in nature. Read his revision of this section.

Student Model

Ways to Look at Patterns

A camera is a great tool for looking at patterns in nature.

With a camera, you can focus on

whatever you want you can take a photograph of grass, flower ^{petals} ~~pettles~~,

^{pine} or needles. You can also zoom in to look at things that are far away ^{such as mountaintops.} ~~A~~

photo can also surprise you. When you look at it later you may see ^{an unexpected bug on the stem or} a

^{complex} pattern on a leaf. ~~My uncle always takes pictures of his family!~~

Editing Marks

^ Add

⊙ Add a period.

↪ Take out.

sp Check spelling.

≡ Make a capital letter.

Grammar Handbook

Main and Helping Verbs

See page 460.

COLLABORATE



Your Turn

- Identify how Jeff develops his main ideas with concrete details and examples.
- Look at Jeff's verbs. Point out main and helping verbs.
- Tell how revisions improved Jeff's writing.

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