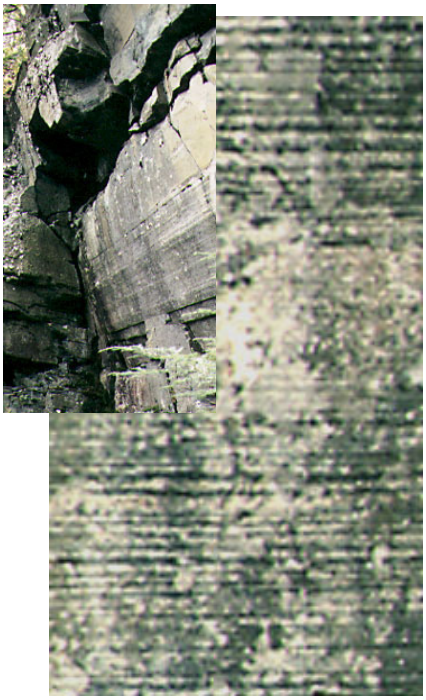
American Museum of Natural History

# Exploration Rocks

## COMPARE

**What's different about these rocks?** Describe each rock using words.



### Gowganda Tillite

Are some rocks more colorful than others?

How would you describe the layers of this rock?

### Loraine Quartzite

How would you describe the color on this rock from far away and close up?

How many different colors can you see on this rock?

### Gowganda Glacial Conglomerate

Do you see any patterns in this rock?

How would you describe the different patterns on this rock?

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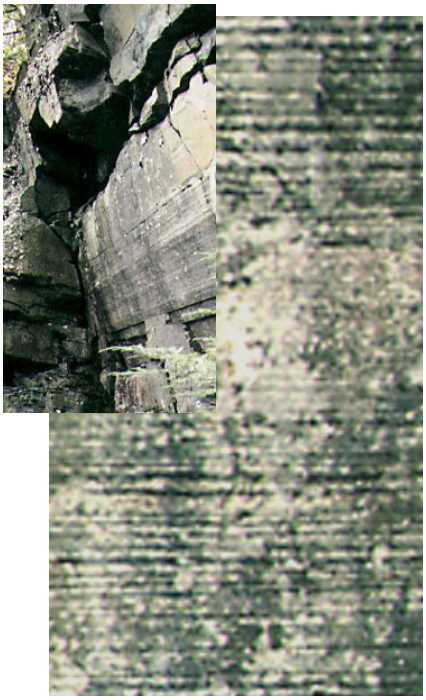
## FUN FACTS



### Gowganda Tillite

Each pairing of light and dark bands shows one year's deposit, so like tree rings, you can use these to count the number of years. The little stone that you see dropped into the rock fell from a glacier - see how the layers seem to wrap around the stone. They're called 'drop stones'. Also, it's a very old rock, so that tells us that glaciers existed a long time ago.

### Loraine Quartzite

This rock is very even and consists mostly of the minerals quartz and feldspar. The fact that it's red tells us that it's been rusted. This rock is more than 2 billion years old.

### Gowganda Glacial Conglomerate

The large pink pieces that you can see in this rock are granite and they were carried along in a glacier and then dropped out of the glacier when the glacier melted. All this happened a very long time ago - more than 2 billion years!

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## FIELD JOURNAL

### Instructions

**Let's go on a rock hunt!** Think of some places near your home where you might be able to find some rocks.

Try to find at least three different rocks and draw a picture of each one. Remember that rocks come in many different sizes. You might want to look for some rocks that are small enough to pick up with one hand, some rocks that are too big to lift, and maybe even some rocks that are bigger than you are!

As you are drawing, you might want to think about these questions:
- Where did you find this rock?
- How would you describe this rock?
- Close your eyes and touch this rock. What does it feel like? Are parts of it smooth? Are parts of it rough?
- How is it different from the other rocks you found?
- Do you see any patterns in this rock? Look at the whole rock. Does it look like it is all made of the same thing or does it look like it is made up of smaller parts?
- Are there any other rocks where you found this one?

When you are finished, look at all of your pictures. How are these rocks the same? How are they different?

| **Your Name:** | **Today's Date:** |
|---|---|
| **What's the Weather Like?** | |

**Draw the rocks you see in the space below.**

# Exploration Rocks

## TIPS FOR ADULT HELPERS

### General Tips

**1. Try to ask children open-ended questions.** These kind of questions help children talk about nature. For example, a useful open-ended question could be, "How would you describe this shell?"

**2. There are many "correct" answers.** When asking open-ended questions, remember that there is no one "correct" answer. There are many "right" answers. The goal is to have children and adults have a thoughtful discussion.

**3. Praise thoughtful answers.** If you ask a close-ended question (such as "What animal lives in that shell?" or "What color is that bird?"), any thoughtful answer could be praised. Even if the child's answer is inaccurate, you could say something like, "That was a great idea. You know, that is how scientists learn, by thinking and trying out different ideas."

**4. Start from what the child knows already.** When trying to get a thoughtful discussion going, start with what the child already knows about a topic. Use that information as a springboard for further exploration. Through discussion and exploration, children can expand and revise their knowledge about nature.

**5. Explore together.** If the topic is new to you as an adult helper, share this information with the child. You can make guesses and explore together. All science starts off with questions, not answers.

**6. Science IS exploration and discovery.** When you let children try out different theories, you help introduce them to the scientific method and start building research skills.

**7. Explore a science book together.** If a child is interested in a particular topic, you might want to follow up the activity reading a science book together and writing down what you have learned about the topic.

### Examples of Open Ended Questions About Rocks

When you **compare and contrast** different rocks, you might begin by asking:

- How would you describe the shape of this rock?
- How many different colors can you see on this rock?
- How would you describe the different colors on this rock?
- Do you see any patterns in this rock?

To discuss **similarities and differences**, you might want to ask questions, such as:

- How are these rocks similar to each other?
- How are they different?

If the child is having a hard time coming up with ideas, you might prompt her/him with more narrow questions such as:

- Look at the patterns in each rock. Are any of the patterns similar?
- How are the patterns different?
- Are some rocks more colorful than others?
- Do you think all of these rocks would feel the same if you touched them? Why or why not?
- How are the shapes of these rocks the same?
- How are the shapes different?