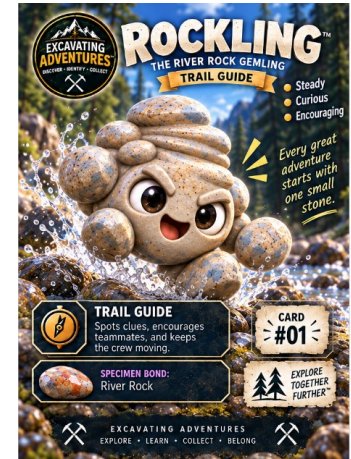


Metamorphic Rocks

Gemcart Bridge with Rockling

Learning target

Distinguish metamorphism from melting and cooling.



Before you begin

Use the reference page and discussion prompts on their own, or open the optional browser adventure. No earlier lesson or physical kit is required.

For online play: use an internet-connected current browser with local storage enabled. Read the three-part Gemling briefing, answer the quick check, and apply the evidence at three checkpoints. Retry feedback supports review; results are not a secure test or gradebook.

Use for teacher-led review, science centers or partner practice. Independent readers may need support with the vocabulary below. The design target is grades 3-5; choose support based on the learner.

Vocabulary and concepts to discuss

Change while solid; heat and pressure; limestone to marble; shale to slate

Open Gemcart Bridge - direct lesson link

Scan the QR code or use the clickable link. This guide is usable offline; the adventure runs on an external educational website.



Metamorphic Rocks - key ideas

1. Rocks can change form

Metamorphic means changed form. Heat and pressure can change an existing rock into a different rock.

2. Changed, but not melted

During metamorphism, the rock stays solid. Its minerals and texture can change. If it melts, that melt may later cool into igneous rock.

3. Meet two changed rocks

Limestone can become marble. Shale can become slate. Some metamorphic rocks have bands, but marble may not. Formation tells the story.

Keep the science accurate

Gemcart weight or a bridge crossing does not produce real metamorphic rock. Use a separate geological model.

Apply the evidence

Use a specific observation from this lesson to explain one choice. Point to a clue, then connect that clue to a scientific idea.

Curriculum reference: <https://www.nps.gov/subjects/geology/rocks.htm>

Talk through the evidence

1. Does a rock melt completely during metamorphism?

Expected answer: No - it stays solid

Reasoning: Metamorphic rocks change while remaining solid.

2. Which clues can explain metamorphic change?

Expected answer: Heat and pressure

Reasoning: Heat and pressure can change an existing solid rock.

3. Limestone changes under heat and pressure. What can it become?

Expected answer: Marble

Reasoning: Limestone can change into marble.

4. A sample has no bands. Could it still be metamorphic?

Expected answer: Yes - marble may have no bands

Reasoning: Not all metamorphic rocks have bands. How they form matters.

Guide the discussion

Ask learners to name the evidence that supports their answer. If an answer differs, revisit the matching key idea on page 2 and invite a revised explanation.

Online rewards: this lesson grants one fixed digital Expedition Discovery. Five saved digital Gemling friends become available only after all six distinct subject lessons are complete, in any order. Digital rewards do not establish physical ownership.