

Mountains, Valleys & Ice

Glacier Pass with Landling

Learning target

Compare mountain and glacial landforms using visible evidence.



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

Mountain landforms; uplift overview; glaciers; ice erosion and deposition

Open Glacier Pass - 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.



Mountains, Valleys & Ice - key ideas

1. The first clues

Mountains rise above surrounding land. Earth's moving crust can uplift mountains, while weathering and erosion wear them down.

2. How the clues connect

Glaciers are masses of ice that flow slowly. They can scrape and carry rock, shape broad valleys and leave deposits when ice melts.

3. Our evidence record

Our two models show a narrow V-shaped river valley and a broad U-shaped valley with scrape marks. Several clues together make ice action a stronger interpretation for the second model.

Keep the science accurate

Keep map reading and observable forms central. Detailed plate mechanics and contour calculations are extensions.

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.nextgenscience.org/dci-arrangement/4-ess2-earths-systems>

Talk through the evidence

1. What is a glacier?

Expected answer: A mass of slowly flowing ice

Reasoning: Glaciers are masses of ice that flow slowly. They can scrape and carry rock, shape broad valleys and leave deposits when ice melts.

2. Which model better supports glacier action?

Expected answer: Broad U-shaped valley with scrape marks

Reasoning: Our two models show a narrow V-shaped river valley and a broad U-shaped valley with scrape marks. Several clues together make ice action a stronger interpretation for the second model.

3. What may remain after a glacier melts?

Expected answer: Deposited rock and sediment

Reasoning: Glaciers are masses of ice that flow slowly. They can scrape and carry rock, shape broad valleys and leave deposits when ice melts.

4. Can mountains be built up and worn down?

Expected answer: Yes, different processes act on them

Reasoning: Mountains rise above surrounding land. Earth's moving crust can uplift mountains, while weathering and erosion wear them down.

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.