

Fossils & Earth's Changing Story

Buried Bone Catacombs with Dinoling

Learning target

Combine fossil and rock evidence to explain environmental change.



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

Past environments; change over time; extinction; evidence and uncertainty

Open Buried Bone Catacombs - 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.



Fossils & Earth's Changing Story - key ideas

1. The first clues

Places on land today may have been under water long ago. Fossils and rocks preserve clues about environments that changed over time.

2. How the clues connect

Extinction means a kind of organism has no living members left. A fossil's absence from one layer alone does not prove extinction everywhere.

3. Our evidence record

Marine fossils in a rock layer now on a hill support a past marine setting followed by change. They do not mean living sea animals climbed the hill to make the rock.

Keep the science accurate

Use relative ages and evidence-based interpretations. Do not require exact fossil dates, detailed taxonomy or an unbroken fossil record.

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/3-Is4-biological-evolution-unity-and-diversity>

Talk through the evidence

1. What do marine fossils on land suggest?

Expected answer: A past marine environment

Reasoning: Marine fossils in a rock layer now on a hill support a past marine setting followed by change. They do not mean living sea animals climbed the hill to make the rock.

2. What does extinction mean?

Expected answer: No living members of that kind remain

Reasoning: Extinction means a kind of organism has no living members left. A fossil's absence from one layer alone does not prove extinction everywhere.

3. Why combine fossil and rock clues?

Expected answer: They constrain a better-supported explanation

Reasoning: Places on land today may have been under water long ago. Fossils and rocks preserve clues about environments that changed over time.

4. What is justified by a missing fossil in one layer?

Expected answer: The local record may be incomplete

Reasoning: Extinction means a kind of organism has no living members left. A fossil's absence from one layer alone does not prove extinction everywhere.

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.