How Fossils Form

Bone Bridge Marsh with Dinoling

Learning target

Describe a simple fossilization sequence.

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

Burial; preservation; mineral replacement; molds and casts

Open Bone Bridge Marsh - 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.

How Fossils Form - key ideas

1. The first clues

Burial can protect remains from scavengers and weather. Most organisms decay without fossilizing, so the fossil record preserves only part of past life.

2. How the clues connect

During some fossil formation, minerals fill spaces or replace material. A mold is an impression or hollow shape; sediment or minerals filling it may form a cast.

3. Our evidence record

Our sequence is an organism dies, sediment buries remains, then preservation and rock-forming changes happen over time. Burial helps but never guarantees a fossil.

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-ls4-biological-evolution-unity-and-diversity

Talk through the evidence

1. What can improve preservation?

Expected answer: Protective burial

Reasoning: Our sequence is an organism dies, sediment buries remains, then preservation and rock-forming changes happen over time. Burial helps but never guarantees a fossil.

2. Which model shows a mold?

Expected answer: A hollow impression

Reasoning: During some fossil formation, minerals fill spaces or replace material. A mold is an impression or hollow shape; sediment or minerals filling it may form a cast.

3. Which step comes before long-term preservation in our model?

Expected answer: Sediment buries remains

Reasoning: Our sequence is an organism dies, sediment buries remains, then preservation and rock-forming changes happen over time. Burial helps but never guarantees a fossil.

4. Does every buried organism become a fossil?

Expected answer: No, many decay

Reasoning: Burial can protect remains from scavengers and weather. Most organisms decay without fossilizing, so the fossil record preserves only part of past life.

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.