

Asteroids, Comets & Meteoroids

Comet Ice Cavern with Spaceling

Learning target

Distinguish common small space objects using descriptions.



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

Small bodies; rock and ice; orbits; meteors and meteorites

Open Comet Ice Cavern - 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.



Asteroids, Comets & Meteoroids - key ideas

1. The first clues

Asteroids are mostly rocky or metallic bodies. Comets contain ice and dust and may develop a glowing cloud and tails as they approach the Sun.

2. How the clues connect

A meteoroid is a small space rock or fragment. A meteor is the streak produced during atmospheric entry; material reaching the ground is a meteorite.

3. Our evidence record

Our record follows a fragment in space, a streak in the sky, then a recovered piece. The names describe different parts of the same journey.

Keep the science accurate

Use relative scale and selected comparisons, not memorized distances, all moons or advanced stellar evolution.

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/5-ess1-earths-place-universe>

Talk through the evidence

1. Which object commonly contains much ice and dust?

Expected answer: A comet

Reasoning: Asteroids are mostly rocky or metallic bodies. Comets contain ice and dust and may develop a glowing cloud and tails as they approach the Sun.

2. What is the visible atmospheric streak called?

Expected answer: A meteor

Reasoning: A meteoroid is a small space rock or fragment. A meteor is the streak produced during atmospheric entry; material reaching the ground is a meteorite.

3. What is a piece reaching the ground called?

Expected answer: A meteorite

Reasoning: A meteoroid is a small space rock or fragment. A meteor is the streak produced during atmospheric entry; material reaching the ground is a meteorite.

4. Which sequence matches our record?

Expected answer: Meteoroid, meteor, meteorite

Reasoning: A meteoroid is a small space rock or fragment. A meteor is the streak produced during atmospheric entry; material reaching the ground is a meteorite.

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.