

Orbits & the Earth-Moon System

Eclipse Bridge with Skyling

Learning target

Distinguish spinning from orbiting in a simple system model.



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

Rotation versus revolution; orbits; gravity overview; alignments

Open Eclipse 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.



Orbits & the Earth-Moon System - key ideas

1. The first clues

Rotation is spinning about an axis. Revolution is traveling around another object. Earth rotates while orbiting the Sun; the Moon orbits Earth.

2. How the clues connect

Gravity helps keep objects in their orbital paths. A tabletop model makes positions and motions easier to compare, but distances are usually not to scale.

3. Our evidence record

Our model turns a globe in place, then moves a Moon model around it. The first movement shows rotation; the second shows orbiting. Eclipse details are an optional extension.

Keep the science accurate

Eclipse Bridge remains the name. Eclipse mechanics are optional; never require direct Sun viewing.

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 action models rotation?

Expected answer: Spinning the globe in place

Reasoning: Rotation is spinning about an axis. Revolution is traveling around another object. Earth rotates while orbiting the Sun; the Moon orbits Earth.

2. Which object does the Moon orbit?

Expected answer: Earth

Reasoning: Rotation is spinning about an axis. Revolution is traveling around another object. Earth rotates while orbiting the Sun; the Moon orbits Earth.

3. What helps hold objects in orbital paths?

Expected answer: Gravity

Reasoning: Gravity helps keep objects in their orbital paths. A tabletop model makes positions and motions easier to compare, but distances are usually not to scale.

4. Why check a model's scale note?

Expected answer: Distances may be simplified

Reasoning: Gravity helps keep objects in their orbital paths. A tabletop model makes positions and motions easier to compare, but distances are usually not to scale.

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.