

Day, Night & Shadows

Sundial Terrace with Skyling

Learning target

Explain daily light and shadow patterns using a 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

Earth's rotation; apparent Sun movement; shadow direction and length

Open Sundial Terrace - 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.



Day, Night & Shadows - key ideas

1. The first clues

Earth rotates, turning different places toward and away from the Sun. This produces the regular day-night pattern.

2. How the clues connect

As the Sun's apparent position changes, shadows change direction and length. A shadow falls on the side away from the light source.

3. Our evidence record

Our sundial record shows long morning shadows and a shorter shadow near midday. The observations fit a changing light angle during Earth's rotation.

Keep the science accurate

Phases are not normally Earth's shadow. Seasons are primarily tilt-related, not distance-related. Eclipse mechanics are optional.

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. What causes the daily day-night pattern?

Expected answer: Earth's rotation

Reasoning: Earth rotates, turning different places toward and away from the Sun. This produces the regular day-night pattern.

2. Where does a shadow fall?

Expected answer: Away from the light source

Reasoning: As the Sun's apparent position changes, shadows change direction and length. A shadow falls on the side away from the light source.

3. Which shadow is shorter in our record?

Expected answer: The one near midday

Reasoning: Our sundial record shows long morning shadows and a shorter shadow near midday. The observations fit a changing light angle during Earth's rotation.

4. What explains the pattern?

Expected answer: Changing light angle as Earth turns

Reasoning: Our sundial record shows long morning shadows and a shorter shadow near midday. The observations fit a changing light angle during Earth's rotation.

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.