

Energy Sources & Choices

Windwheel Ridge with Zingling

Learning target

Compare energy-source choices for a stated purpose.



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

Sun; wind; water; fuels; renewable and nonrenewable sources; constraints

Open Windwheel Ridge - 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.



Energy Sources & Choices - key ideas

1. The first clues

Energy sources include sunlight, wind, moving water and fuels. Some are replenished naturally, while fossil fuels are not replaced on human timescales.

2. How the clues connect

A source choice depends on conditions and needs. Renewable does not mean available everywhere at every moment or free of impacts.

3. Our evidence record

Our site record shows strong steady wind during the required operating period and little sunlight. A wind-powered option fits this record, while another site could favor a different source.

Keep the science accurate

Use qualitative energy evidence; no kinetic/potential-energy equations. Energy is transferred, not simply destroyed when a device stops.

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/4-ps3-energy>

Talk through the evidence

1. Which source fits the supplied period?

Expected answer: Wind

Reasoning: Our site record shows strong steady wind during the required operating period and little sunlight. A wind-powered option fits this record, while another site could favor a different source.

2. Are fossil fuels quickly replaced on human timescales?

Expected answer: No

Reasoning: Energy sources include sunlight, wind, moving water and fuels. Some are replenished naturally, while fossil fuels are not replaced on human timescales.

3. Does renewable mean impact-free?

Expected answer: No

Reasoning: A source choice depends on conditions and needs. Renewable does not mean available everywhere at every moment or free of impacts.

4. What should a choice explain?

Expected answer: Conditions, needs and tradeoffs

Reasoning: A source choice depends on conditions and needs. Renewable does not mean available everywhere at every moment or free of impacts.

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.