

Heat, Temperature & Change

Base Lodge with Sizzling

Learning target

Distinguish a temperature reading from heat moving between objects.



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

Temperature measurement; heat as transfer; warmer to cooler; observable effects

Open Base Lodge - 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.



Heat, Temperature & Change - key ideas

1. The first clues

Temperature describes how hot or cold something is, measured with a thermometer. Heat is energy transferred because of a temperature difference.

2. How the clues connect

Heat transfers from warmer to cooler regions. Objects can change temperature as energy moves between them and their surroundings.

3. Our evidence record

Our model places a 40 degrees C object beside a 20 degrees C object in thermal contact. The expected transfer is from the warmer object toward the cooler one; temperature and heat are related but not identical quantities.

Keep the science accurate

Convection and radiation are descriptive models, not fluid/thermal equations. No hot-material experiments are required.

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 object is warmer?

Expected answer: The 40 degrees C object

Reasoning: Heat transfers from warmer to cooler regions. Objects can change temperature as energy moves between them and their surroundings.

2. Which way does heat transfer in the model?

Expected answer: From 40 degrees C toward 20 degrees C

Reasoning: Our model places a 40 degrees C object beside a 20 degrees C object in thermal contact. The expected transfer is from the warmer object toward the cooler one; temperature and heat are related but not identical quantities.

3. What instrument measures temperature?

Expected answer: Thermometer

Reasoning: Temperature describes how hot or cold something is, measured with a thermometer. Heat is energy transferred because of a temperature difference.

4. Are heat and temperature identical terms?

Expected answer: No

Reasoning: Our model places a 40 degrees C object beside a 20 degrees C object in thermal contact. The expected transfer is from the warmer object toward the cooler one; temperature and heat are related but not identical quantities.

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.