

Name: _____ Date: _____

Heat Energy Journey for 4th Grade Scientists

Learners analyze how thermal energy moves through materials like blubber, metal, and space to solve real-world temperature puzzles.

1. Imagine you are holding a cold snowball in your warm hand. What is actually happening with the heat energy?

- A. The cold from the snow moves into your hand.
- B. Heat energy moves from your warm hand into the cold snow.
- C. The snow and your hand both stay the same temperature.
- D. Cold and heat move back and forth in a circle.

2. True or False: A dark-colored T-shirt absorbs more heat energy from sunlight than a white T-shirt.

- A. True
- B. False

3. Penguins have a thick layer of fat called blubber. This fat acts as an _____, which helps stop their body heat from escaping into the cold water.

- A. Insulator
- B. Conductor
- C. Radiator
- D. Generator

4. Why does a metal slide feel much hotter on a sunny day than a wooden bench nearby?

- A. Wood creates its own cold energy.
- B. Metal is a good conductor that transfers heat quickly to your skin.
- C. Metal blocks the sun from reaching the ground.
- D. The wooden bench is in the shade while the slide is not.

5. When you boil a pot of water, the warm water at the bottom rises while the cooler water sinks. This circular movement of heat is called _____.

- A. Conduction
- B. Radiation
- C. Convection
- D. Evaporation

6. True or False: If you leave a hot cup of cocoa on the counter, it will eventually cool down to the same temperature as the air in the room.

- A. True
- B. False

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7. Which of these is the best example of heat transfer through radiation?

- A. Feeling the warmth of a campfire on your face from five feet away.
- B. Burning your finger by touching a hot lightbulb.
- C. A hot air balloon rising up into the sky.
- D. Melting butter in a warm pan.

8. Energy cannot be created or destroyed; it can only change form or move. This is a scientific rule known as the _____ of Thermodynamics.

- A. Second Law
- B. First Law
- C. Third Law
- D. Zero Law

9. True or False: A thick wool sweater creates its own heat to keep you warm in the winter.

- A. True
- B. False

10. If you put a plastic spoon and a metal spoon into a cup of hot water, the _____ spoon will feel hot to your touch much sooner.

- A. Plastic
- B. Metal
- C. Wooden
- D. Rubber