Name: _____ **Date:** _____

Answer Key: Heat Hero Challenges for Kindergarten

Can your students predict where the heat will hide? Young scientists will analyze heat flow and material changes in these challenging scenarios.

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1. If you leave a cold popsicle and a warm cookie on a table in a sunny room, what will eventually happen to both of them?

Answer: B) They will both become the same temperature as the room

Heat moves between objects and the air until everything reaches a state of balance, which is the room's temperature.

2. If you have a hot cup of cocoa, the heat energy can travel through the air to reach your cold hands without you touching the cup.

Answer: A) True

This is thermal radiation; heat can travel through space or air to reach nearby objects even without direct contact.

3. You place a metal spoon and a plastic spoon into a warm bowl of soup. Which spoon will feel the hottest to touch after one minute?

Answer: C) The metal spoon

Metal is an excellent conductor, meaning heat energy flows through it much faster than through plastic.

4. Imagine you are wearing a black shirt and your friend is wearing a white shirt on a very sunny day. Why do you feel much hotter than your friend?

Answer: A) Dark colors soak up more heat from sunlight

Dark objects absorb more radiant energy from the sun, which turns into thermal energy and makes the fabric hotter.

5. When you put an ice cube into a glass of warm water, the 'coldness' moves from the ice into the water.

Answer: B) False

Scientifically, 'cold' doesn't move. Instead, the heat energy from the warm water moves into the ice cube to melt it.

6. If you hold a piece of chocolate in your hand, it melts. Where did the heat energy come from to make the chocolate change?

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Answer: B) Your warm body

Your body has a higher temperature than the chocolate, so heat transfers from your skin to the chocolate, causing a phase change.

7. A scientist wants to keep a cup of juice cold. Which material would be the BEST 'Heat Trapper' (insulator) to wrap around the cup?

Answer: B) A thick wool sock

Wool is an insulator that slows down the transfer of heat from the warm air to the cold juice.

8. If you rub your hands together very quickly, they will start to feel warm.

Answer: A) True

Friction (rubbing) turns the energy of your movement into thermal energy, which makes your skin feel hot.

9. You have two bowls of soup. One is very hot and one is just warm. Which one will lose its heat to the cool air faster?

Answer: A) The very hot soup

The bigger the difference in temperature between the soup and the air, the faster the heat energy will move.

10. If a bird wants to stay warm during a snowy day, why does it fluff up its feathers?

Answer: B) To trap a layer of air that keeps its body heat in

Trapped air is an excellent insulator; fluffing feathers creates an air pocket that stops body heat from escaping into the cold.