Name: _____ **Date:** _____

Answer Key: Wrangle the Heat: A 2nd Grade Thermodynamics Quest

Insulation, temperature change, and energy flow—foundational concepts to help young scientists predict how materials react to heat in their daily lives.

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1. Imagine you are wearing a thick, fuzzy coat on a snowy day. What is the coat doing for your body?

Answer: B) It is trapping your body heat inside.

Coats act as insulators; they don't create heat, but they keep the heat your body already has from escaping into the cold air.

2. If you leave a bowl of cold strawberry ice cream on the sunny porch, the heat from the ___ will move into the ice cream.

Answer: C) Sunlight

Heat moves from warmer things to cooler things. The energy from the warm sunlight will transfer to the cold ice cream, causing it to melt.

3. True or False: Heat can move from a piece of hot toast to a cold slab of butter.

Answer: A) True

This is true because heat naturally flows from a warmer object (the toast) to a cooler object (the butter).

4. Which of these materials would stay the coolest if you left it out in the hot sun for an hour?

Answer: C) A light-colored wooden bench

Light colors reflect more sunlight, and wood does not soak up and move heat as quickly as metal or dark pavement do.

5. When energy moves from a warm campfire to your hands, we call this the flow of ___.

Answer: B) Heat

Heat is the specific name for energy moving from one place to another because of a difference in temperature.

6. True or False: If you put a hot potato and a cold potato together, the cold potato will eventually get warmer.

Name: _____ **Date:** _____

Answer: A) True

Heat moves from the hot potato into the cold potato until they reach a similar temperature.

7. You are making a 'hot cocoa holder' to keep your drink warm. Which material would be the best choice?

Answer: B) A thick layer of Styrofoam

Styrofoam is a great insulator, meaning it slows down the movement of heat, keeping the cocoa hot for a longer time.

8. Rubbing your hands together very quickly makes them feel warm because of ___.

Answer: B) Friction

Friction happens when two surfaces rub together, turning the energy of your movement into heat energy.

9. What happens to the tiny particles (atoms) in a cup of water when the water gets much hotter?

Answer: C) They move around much faster.

Heat adds energy to particles. When things get hot, their tiny parts move faster and bump into each other more.

10. True or False: An ice cube melts because it is giving its 'coldness' to the warm room.

Answer: B) False

Actually, 'coldness' doesn't move. Instead, the heat from the warm room moves INTO the ice cube, causing it to melt.