Name: _____ **Date:** _____

Answer Key: Escape the Frozen Cave: First Grade Thermal Adventure

Prove you are a Heat Hero by predicting how energy moves to save a shivering explorer from the icy chills.

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1. You are shivering in the snow! To stay warm, you hug a fuzzy llama. Why does this help you?

Answer: A) The llama's heat moves into your body

Heat always travels from the warmer object (the llama) to the cooler object (you) until you feel cozy.

2. True or False: Heat can jump through the air from a campfire to your hands without you touching the flames.

Answer: A) True

This is called radiation. Heat moves through space to reach you, even if you aren't touching the wood.

3. If you leave a ____ on a sunny sidewalk, it will gain thermal energy and eventually disappear into a puddle.

Answer: C) Snowman

A snowman is made of frozen water. When it gains heat energy from the sun, the molecules move faster and turn into liquid water.

4. You have a cup of hot cocoa and a cup of cold milk. If you pour them together, what will happen to the temperature?

Answer: B) It becomes warm

Heat moves from the hot cocoa to the cold milk until they meet in the middle and become warm.

5. True or False: A metal slide on a summer day feels hot because it is good at moving heat into your legs.

Answer: A) True

Metal is a conductor. It absorbs heat from the sun and quickly transfers it to your skin when you touch it.

6. A refrigerator is a machine that uses ____ to move heat from the inside of the box to the outside kitchen air.

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Answer: B) Work and energy

To make heat move from a cold place to a warm place, a machine must do work using energy (like electricity).

7. Imagine you are an engineer. Which material would you use for a winter coat to stop heat from escaping your body?

Answer: C) Thick wool

Wool is an insulator. It traps air and stops your body heat from moving out into the cold air.

8. True or False: If you put a hot toaster in a giant room, the toaster will eventually get as cool as the air in the room.

Answer: A) True

Energy spreads out until everything is the same temperature. The toaster gives its heat to the air.

9. When you stir a pot of soup, the hot soup at the bottom rises to the top. This movement of heat in liquids is called ____.

Answer: C) Convection

Convection is when warm parts of a liquid or gas rise up and cool parts sink down.

10. If you have a very cold popsicle and you put it in a hot oven for one second, what happens to the energy?

Answer: A) Heat flows from the oven into the popsicle

Heat always moves from the hot place (oven) to the cold place (popsicle). Cold isn't a 'thing' that moves; only heat moves!