

Name: _____ Date: _____

Answer Key: Feeling the Flow? 6th Grade Heat Transfer Quiz

Moving beyond simple temperature readings, students identify how thermal energy shifts through pizza stones, puffy jackets, and coastal breezes.

1. Why does a blacksmith heat a horseshoe in a forge before shaping it on an anvil?

Answer: B) To make the particles move faster and soften the metal

Adding heat increases the kinetic energy of the atoms, making the metal more pliable and easier to shape.

2. True or False: Thermal energy always moves from a cooler object to a warmer object naturally.

Answer: B) False

According to the principles of thermodynamics, heat naturally flows from areas of higher temperature to areas of lower temperature.

3. When you use a wooden spoon to stir hot chocolate, the handle stays cool because wood is a good _____.

Answer: C) Insulator

Insulators are materials that do not allow heat to flow through them easily, unlike metals.

4. Which method of heat transfer explains why the top bunk of a bunk bed is usually warmer than the bottom bunk?

Answer: D) Convection

Convection is the process where warmer, less dense fluids (like air) rise, while cooler, denser fluids sink.

5. The sun warms your face on a cold winter day through a process called _____.

Answer: A) Radiation

Radiation is the transfer of energy through electromagnetic waves and does not require a solid, liquid, or gas to travel through.

6. True or False: Energy cannot be created or destroyed, only changed from one form to another.

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Answer: A) True

This is a fundamental concept known as the Law of Conservation of Energy (the First Law of Thermodynamics).

7. If you place a room-temperature ceramic tile on a hot pizza stone, what happens to the energy?

Answer: B) Heat moves from the stone to the tile

Heat energy moves from the hotter object (pizza stone) to the cooler object (tile) until they reach the same temperature.

8. A puffy down jacket keeps you warm by trapping air. In this scenario, the trapped air acts as an _____.

Answer: B) Insulator

The air trapped in the jacket prevents your body heat from escaping to the cold outside air.

9. Which of these is the best example of conduction?

Answer: C) Touching a hot car seat after it sat in the sun

Conduction is the transfer of heat through direct contact between two objects.

10. True or False: Temperature is a measurement of the average kinetic energy of the particles in an object.

Answer: A) True

Temperature tells us how fast the atoms or molecules in a substance are moving or vibrating.