

Quiz.

1. On a cold night, why does a tile floor feel colder than a carpeted floor at the same temperature?
 - a) Heat is flowing from the tile to your feet.
 - b) The tile is a better conductor.
 - c) The carpet is a better conductor.

2. What causes seasons?
 - a) how close we are to the sun
 - b) rotation and revolution of the earth
 - c) tilt and revolution of the earth
 - d) tilt and rotation of the earth

3. During convection, heated fluids expand, rise, cool down, and then fall. Why does the heated fluid expand?
 - a) Heated molecules move faster.
 - b) Expanding air cools.
 - c) It becomes more dense.

4. Ice radiates heat.
 - a) True
 - b) False

5. Why do pots and pans have wooden or plastic handles?
 - a) wood and plastic are good conductors
 - b) wood and plastic are good insulators
 - c) wood and plastic are good radiators

6. How does a blanket keep you warm? (Circle all that apply.)
 - a) It traps air, which is a good insulator.
 - b) The static electricity heats you up.
 - c) It traps air, which is a good conductor.
 - d) Your body radiates heat.

7. Why can't you light wet firewood?
 - a) Water is a good conductor.
 - b) Water is a poor conductor.
 - c) Water is a good insulator.

8. During convection, heated fluids expand, rise, cool down, and then fall. Why does the rising air cool down?

- a) Cooling air expands and becomes less dense.
- b) The air is rising because it is expanding and becoming less dense, and expanding air cools.

9. Which of these is not an insulator of heat?

- a) snow
- b) Styrofoam
- c) ionized water
- d) fiberglass
- e) wool

Answer Key.

1. b)

The tile is a better conductor of heat; therefore, when you step on it the heat flows out of your feet and into the tile floor, giving you the sensation of feeling cold.

2. c)

The tilt of the Earth and its revolution around the sun allow the northern and southern hemispheres to receive varying amounts of sunlight. The seasons do not depend on our proximity to the sun. In fact, we are the closest to the sun during winter in the northern hemisphere!

3. a)

Remember, the molecules in a hot cup of coffee are moving more quickly than the molecules in a cold cup of coffee. The faster the molecules move, the more they knock into each other, creating more space between each other and decreasing the density of the fluid.

4. a)

Everything radiates!

5. b)

The main reason we use wood or plastic handles for our pots and pans is that they are good insulators and do not allow heat to flow into our hands.

6. a) & d)

Blankets work because the air trapped in between their fibers is a good insulator, and the air prevents* the heat your body radiates from escaping.

*There is no such thing as a perfect insulator.

7. a)

Remember, you cannot light wet wood because the water in the wood conducts heat away, preventing the wood from reaching its ignition temperature.

8. b)

This was a tricky question. Expanding air cools because the molecules are losing kinetic energy, but cooling air does not expand. Cooling air condenses, becoming more dense, and then it falls.

9. c)

Your tongue can freeze to a metal pole, even if the ambient air is above freezing because water is a good conductor of heat! All of the other options trap air and are good insulators.