

TEST NAME: **6.P.3 - Heat Unit Test**
TEST ID: **123398**
GRADE: **06**
SUBJECT: **Life and Physical Sciences**
TEST CATEGORY: **My Classroom**

Student: _____

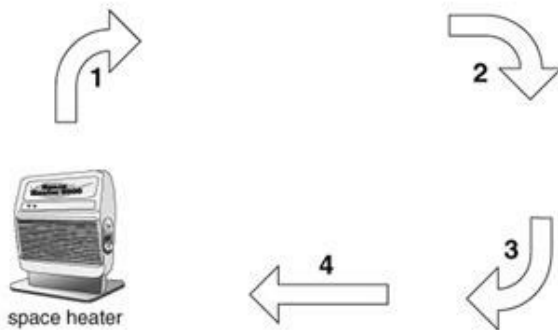
Class: _____

Date: _____

1. A student is given three identically sized blocks. Each block is made of a different material. What characteristic of the blocks should be examined to find out which block is made of metal?

- A. color
- B. weight
- C. texture
- D. conductivity

2. Use the diagram of a convection current to answer the question that follows.



Which arrow represents the hottest air in this convection current?

- A. 1
- B. 2
- C. 3
- D. 4

3. Mary used a thermometer to test the air temperature at four points near a lit bulb. She recorded her data in the table.



Temperatures Near Bulb

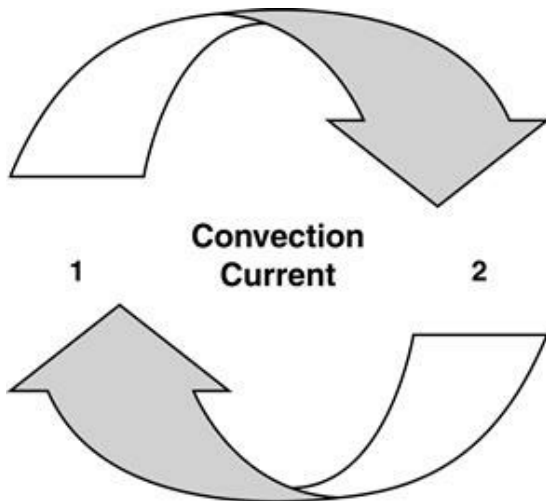
Point	Temperature (°C)
1	22
2	24
3	27
4	28

Which best explains why the air closest to the bulb was warmest?

- A. because the bulb was insulated
- B. because the bulb gives off light
- C. because heat radiated from the bulb
- D. because the bulb conducted electricity

4. **A conducting wire wrapped in plastic protects the user because the plastic**
- A. keeps the wire cool.
 - B. allows heat to move freely.
 - C. is a good electrical insulator.
 - D. has magnetic properties.
5. **When a frying pan is placed on an electric stove top, heat energy is transferred from the burner to the pan by**
- A. convection.
 - B. radiation.
 - C. conduction.
 - D. insulation.
6. **A chef uses a metal spoon to stir noodles cooking in a pan. After five minutes, she notices that the thermal energy from the pan has made the spoon**
- A. cold.
 - B. hot.
 - C. wet.
 - D. dry.
7. **Which would be the best conductor of electricity?**
- A. air
 - B. cork
 - C. water
 - D. silver
8. **Isabella filled a glass with warm water. She measured the temperature, and it was 30°C. She left the glass on a table in a room that was 20°C. A few hours later, she measured the water temperature again, and it was 24°C. Which best explains why the water temperature changed?**
- A. Energy in the air removed heat from the water.
 - B. Heat energy in the water was destroyed by the glass.
 - C. Heat energy in the water was transferred to the cooler air.
 - D. Energy used by evaporation caused the water temperature to decrease.

9. The diagram below shows a convection current.

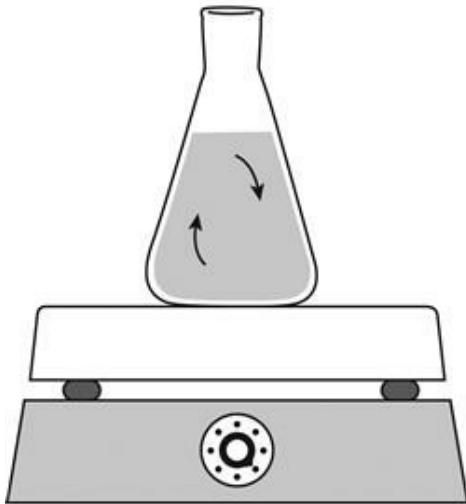


Which set of labels correctly completes this diagram?

- A. 1: Oil is less dense and floats on water.
2: Water is more dense and sinks in oil.
- B. 1: Liquid water evaporates.
2: Condensed water precipitates.
- C. 1: Animals take in oxygen for respiration.
2: Plants take in carbon dioxide for photosynthesis.
- D. 1: Warm air molecules move faster and rise.
2: Cool air molecules move slower and sink.

10. In an investigation, water in a beaker is placed on a hot plate.

**Water Heated on
Hot Plate**



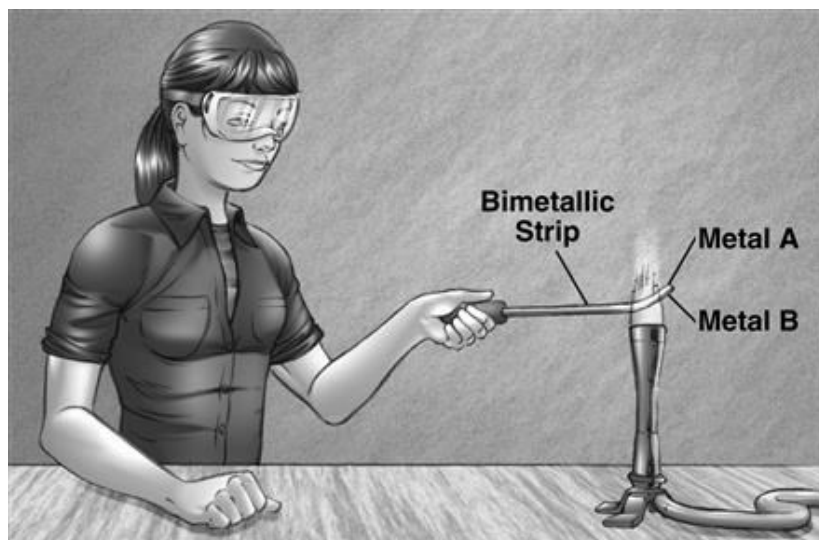
As the water is heated, the cooler, denser water at the surface sinks and pushes the warmer water to the top. What do the arrows in the drawing most likely represent?

- A. phase changes
- B. convection currents
- C. electromagnetic radiation
- D. energy transfer by conduction

11. **A child walks across a carpet and generates an electrical charge. The child will get a slight shock by touching a**
- A. metal doorknob.
 - B. plastic toy.
 - C. rubber ball.
 - D. wooden block.
12. **Laura bruised her knee. She applied an ice pack to the bruised area. When she removed the ice pack from the injured knee, she noticed that the temperature of her skin was lower than the rest of her body. What is the most likely reason this occurred?**
- A. Increased blood flow due to the ice pack caused the skin to be cooler.
 - B. The cooling energy of the ice pack was transferred to the skin.
 - C. Heat energy from the skin was transferred to the ice pack.
 - D. The air surrounding the ice pack cooled the skin.
13. **Which substance can be used to conduct electricity in a circuit?**
- A. metal
 - B. wood
 - C. rubber
 - D. plastic
14. **A hot rock is dropped into a pail of cool water. Heat energy transferred from the rock to the water by**
- A. boiling.
 - B. evaporation.
 - C. conduction.
 - D. radiation.
15. **A recent article in a science journal explains the relationship between convection currents and plate tectonics. As fluid within the mantle circulates, it causes crustal plates to move. Which is most likely causing the liquids inside Earth to circulate?**
- A. energy transfers
 - B. global warming
 - C. tidal variations
 - D. ocean currents
16. **What is the best explanation for why a sleeping bag manufacturing company would use down feathers to stuff the bags?**
- A. The feathers are a good insulator.
 - B. The feathers are soft and will not be lumpy.
 - C. The feathers are a good protection from rain.
 - D. The feathers are easily replaced when they slip out.

17. **The handle of a frying pan is often coated in rubber because rubber provides**
- A. heat insulation.
 - B. electric conduction.
 - C. a low melting point.
 - D. a nonstick surface.
18. **What is an insulator?**
- A. a device that keeps too much current from flowing through wires
 - B. a switch that protects circuits from currents that are too high
 - C. a material through which current cannot move easily
 - D. a loop of wire that generates an alternating current
19. **Energy from the Sun reaches Earth by**
- A. radiation.
 - B. conduction.
 - C. convection.
 - D. thermal expansion.
20. **Molly was making iced tea by putting tea bags in boiling water. She needed to cool the hot tea quickly, so she poured it into a pitcher full of ice. Which best describes the flow of thermal energy?**
- A. from the ice to the tea
 - B. from the tea to the ice
 - C. from the pitcher to the tea
 - D. from the ice to the pitcher
21. **The transfer of heat in the atmosphere by winds that circulate between the equator and the poles is an example of**
- A. radiation.
 - B. insulation.
 - C. convection.
 - D. conduction.
22. **Based on the materials listed below, which one would make the best insulation?**
- A. air
 - B. iron
 - C. glass
 - D. aluminum

23. A teacher was using an instrument made of two metals called a bimetallic strip. Before she held the bimetallic strip over a flame, the strip was straight. When she placed the bimetallic strip in the flame, the strip started to curl. The curl formed because of different expansions of the metals.



Which best describes the expansion of the metals?

- A. Metal A expanded more rapidly than Metal B.
 - B. Metal B contracted more rapidly than Metal A.
 - C. The average kinetic energy of Metal B increased more than Metal A.
 - D. The average potential energy increased more for Metal A than Metal B.
24. Sunlight passes through the windows of a car and causes the car seats to get hot. Which type of energy flow is involved in heating the seats?
- A. conduction
 - B. convection
 - C. insulation
 - D. radiation
25. A pan containing hot water is left on the counter and becomes cool mainly due to
- A. water molecules moving apart.
 - B. cold air penetrating the hot water.
 - C. heat from the water moving into the cooler air.
 - D. hot water reacting with the metal pan.