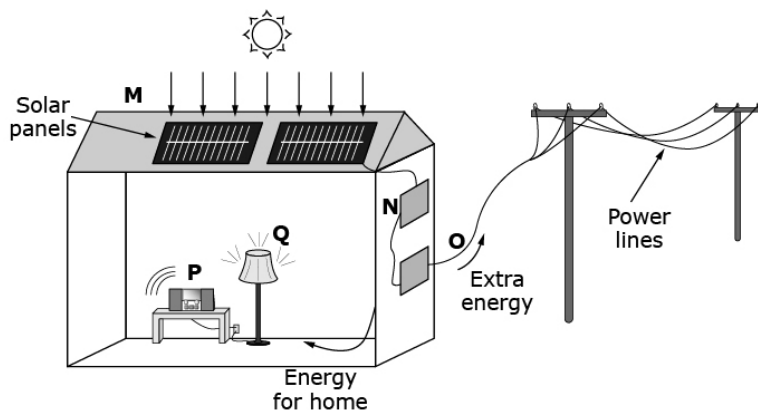


Test Name: 2019-20 PS Unit 7 Pre Assessment

Test Id: 544078

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Directions: The diagram shows a home with solar panels on its roof. Use the diagram to answer any questions that follow.



At point O, what is being brought into the home and sent back out to the power lines?

1.

- A. electrical energy
- B. mechanical energy
- C. thermal and light energy
- D. light energy and sound energy

Which of the following correctly lists the flow of energy on a radio that is operated by a hand crank?

2.

- A. human muscles → crank → electricity → radio speaker
- B. radio speaker → crank → electricity → human muscles
- C. human muscles → radio speaker → electricity → crank
- D. radio speaker → human muscles → crank → electricity

Which statement **best** describes the energy transformation that takes place when a firefighter slides down the fire pole?

3.

- A. Nuclear energy is transformed into chemical energy.
- B. Thermal energy is transformed into electrical energy.
- C. Mechanical energy is transformed into thermal energy.
- D. Electromagnetic energy is transformed into radiant energy.

Energy transferred out of a system during a chemical reaction

4.

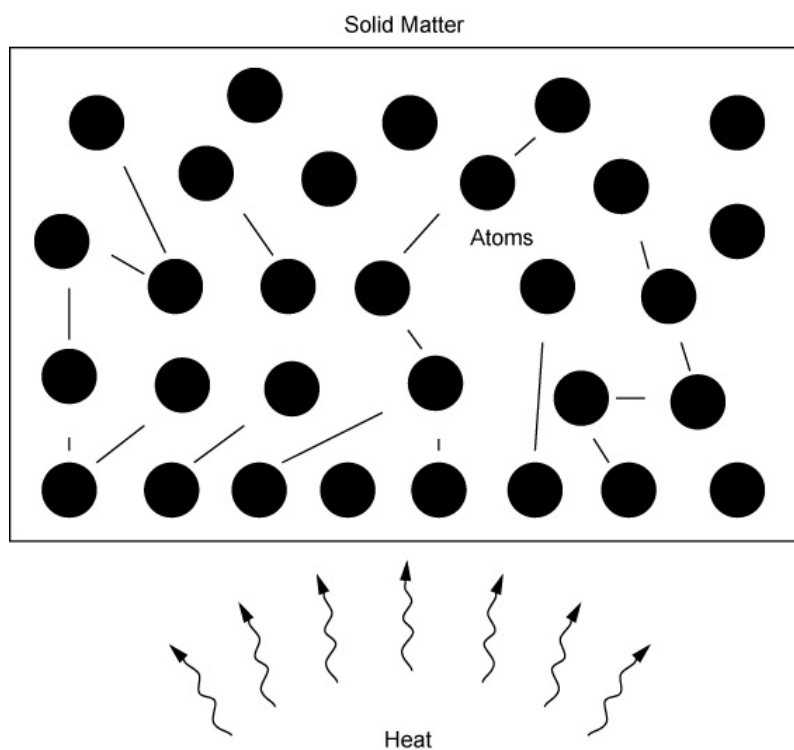
- A. can be destroyed by the atmosphere if not reabsorbed.
- B. is always thermal energy when released from the system.
- C. is always reabsorbed by the system at a later stage of the reaction.
- D. can be released as electrical or mechanical energy as well as thermal.

Moving water can be used to produce electrical energy because

5.

- A. most forms of energy can be converted into other forms.
- B. energy cannot be converted into other forms.
- C. potential energy can only be converted into kinetic energy.
- D. kinetic energy can only be converted into potential energy.

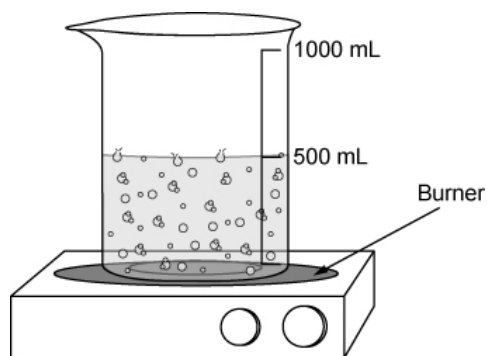
The diagram below shows the atoms that make up a solid.



Which of the following energy transfer mechanisms is occurring between the warmer solid atoms and the cooler solid atoms as they collide with each other?

- 6.
- A. conduction
 - B. convection
 - C. radiation
 - D. reflection

The diagram shows the setup for an experiment involving a 1000 mL beaker, filled with 500 mL of water, sitting on a burner.



Which **best** describes the molecular motion of the water particles as the burner supplies heat?

7.

- A. The molecular motion will increase as less thermal energy is absorbed.
- B. The molecular motion will decrease as less thermal energy is absorbed.
- C. The molecular motion will increase as more thermal energy is absorbed.
- D. The molecular motion will decrease as more thermal energy is absorbed.

Convection currents form when warm air rises and cold air sinks. What causes the warm air to rise and the cold air to sink?

8.

- A. chemical energy
- B. activation energy
- C. a difference in density
- D. that energy was transformed

Read the passage about Evan.

Evan has a black car, and it gets very hot inside the car on a hot summer day. Evan wants to cool his car down as quickly as possible so he can be cool on his drive home from school.

How could Evan position his air conditioner vents to **best** cool down his car?

9.

- A. up because convection causes cold air to sink and hot air to rise
- B. up because conduction causes cold air to sink and hot air to rise
- C. down because convection causes cold air to rise and hot air to sink
- D. down because conduction causes cold air to rise and hot air to sink

In winter the air just above the top bunk of a bunk bed is warmer than the air just above the bottom bunk because warm air rises. Which of the following describes the method of heating that causes this difference in temperature?

10.

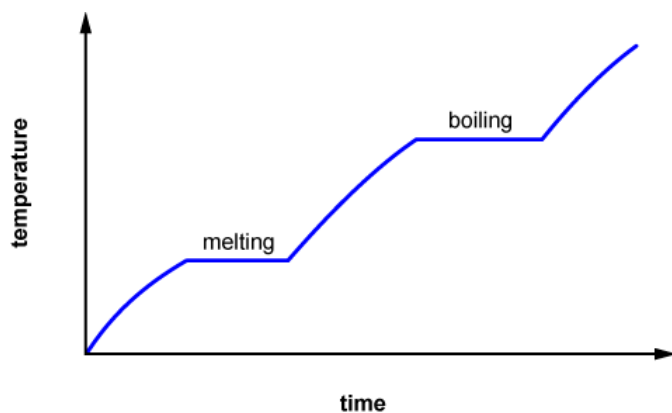
- A. radiation from the room
- B. heat transfer through the walls
- C. heat conduction through the bed
- D. convection currents from the room

Vanessa measures the melting points of four substances. She records the melting point of each

substance in the table below.

Substance	Melting Point (°C)
NaCl	801
KBr	734
H ₂ O	0
C ₆ H ₁₂ O ₆	146

Vanessa continues heating H₂O past its boiling point. She creates the graph below.

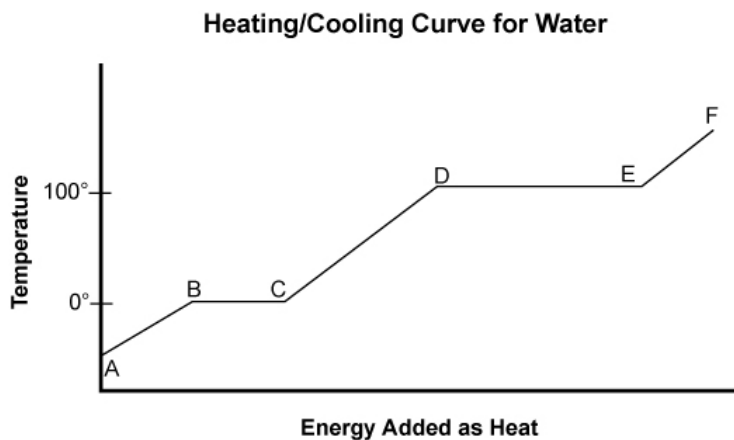


Using her graph, how does Vanessa explain the flow of energy that causes liquid water to form water vapor?

11.

- A. She says that energy does not affect the phase change from liquid water to water vapor.
- B. She says that energy must be removed from liquid water to cause it to change its phase to water vapor.
- C. She says that more energy must be added to water vapor to cause it to change its phase to liquid water.
- D. She says that more energy must be added to liquid water to cause it to change its phase to water vapor.

Directions: Use the graph below to answer any questions that follow.



Which of the following statements concerning the melting of ice, which occurs in segment BC, is true?

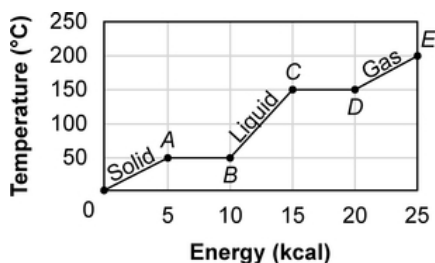
12.

- A. The particle motion decreases.
- B. The particle motion is unaffected.
- C. The temperature increases throughout the phase change.
- D. The temperature stays the same until all the ice has melted.

Identify and describe one type of phase change that involves an increase in the kinetic energy of the particles.

13.

The phase change diagram for water is shown below.



Which **best** explains why the temperature is NOT increasing between lines AB and CD?

14.

- A. Temperature must be held steady while changing from one phase to another.
- B. Temperature does not affect the amount of energy needed for a phase change.
- C. The energy that causes the temperature to increase is absorbed by the molecules during a phase change.
- D. There is so much energy required by the molecules during a phase change that the temperature remains the same.

