

- Heat _____.
 - is the thermal energy of an object
 - is thermal energy transferred between objects
 - is what a thermometer measures
 - is carried by ultraviolet light
- Temperature is a measure of _____.
 - potential energy
 - kinetic energy
 - intramolecular movement
 - intermolecular vibration
- Chill factor occurs because _____.
 - windy air has more kinetic energy than still air and delivers more cold to our skin
 - windy air absorbs more potential energy than still air
 - windy air removes heat from our skin faster than still air
 - our brains anticipate being colder in windy air
- Absolute zero is _____.
 - 273 degrees on the Celsius scale
 - 100 degrees on the Celsius scale
 - 459 degrees on the Celsius scale
 - 459 degrees on the Kelvin scale
- Temperature correlates with _____.
 - electron mobility
 - potential energy
 - arrangement of atoms
 - molecular movement
- List the following in order of best to worst insulator.
 - outer space, moving air, still air, water
 - outer space, still air, moving air, water
 - still air, moving air, water, outer space
 - water, still air, moving air, outer space
- Which is a better insulator?
 - water boiling at 100o C
 - steam at 400 degrees Fahrenheit
- Which of the following is not an important way atoms and molecules conduct heat?
 - causing intramolecular bonds to vibrate faster
 - getting rapidly-moving molecules to bump into slower-moving molecules
 - bombarding distant atoms with electrons
 - vibrating atoms locked in a tight crystal lattice

9. A glass of water sitting for two days in a 35 degree refrigerator is moved outside where it is also 35 degrees. However, outside there's a wind of 25mph. What happens to the temperature of the water?

- (A) rises
- (B) lowers
- (C) remains the same

10. Hypothermia _____.

- (A) indicates that an equilibrium has not been reached with the surrounding environment
- (B) occurs faster in cool water than in a cold wind
- (C) in humans, begins when the body's internal temperature reaches 90 degrees Fahrenheit, 32 degrees Celsius
- (D) developing in 70 degree Fahrenheit water will continue to draw heat from the body and eventually result in a body temperature below 70 degrees Fahrenheit

11. Double-paned windows insulate by _____.

- (A) blocking infrared radiation
- (B) blocking the flow of air molecules
- (C) removing all gas molecules
- (D) trapping kinetic energy between the panes of glass

12. The best insulators are _____(in order).

- (A) gases, liquids, solids, vacuums
- (B) vacuums, gases, liquids, solids
- (C) solids, liquids, gases, vacuums
- (D) liquids, gases, vacuums, solids

13. Trapped air is a better insulator than moving air because _____.

- (A) trapped air is better able to absorb potential energy.
- (B) trapped air is better able to absorb heat.
- (C) trapped air has a lower specific heat capacity.
- (D) trapped air transfers less kinetic energy.

14. Specific heat capacity is the amount of _____.

- (A) potential energy absorbed per gram
- (B) both the potential and kinetic energy absorbed per gram
- (C) the energy needed to raise the temperature of one gram one degree
- (D) the energy needed to raise the potential and kinetic energy of one gram by one degree

15. The boiling point correlates best with the _____.

- (A) strength of the intramolecular bonds
- (B) strength of the intermolecular bonds
- (C) degrees of freedom of movement
- (D) density of the substance being heated

16. Which statement is untrue?

- (A) A gas with twice as many molecules as another gas has twice the energy and is twice as hot
- (B) During boiling, the temperature of the water remains at 100 degrees Celsius as heat is being absorbed by the intermolecular bonds
- (C) There are no degrees in the denominator for either heat of vaporization or heat of fusion
- (D) The specific heat capacity of ice is about the same as the specific heat capacity of steam

17. Water's specific heat capacity is high because of all except _____.

- (A) water has three atoms that move in three directions
- (B) water's two hydrogen atoms can vibrate and scissor
- (C) water molecules can spin in three directions
- (D) water's unshared electrons increase its potential energy

18. The reason canteens of water are covered with wet canvas is that _____.

- (A) the sun infrared radiation warms the wet canvas instead of warming the water inside the canteen
- (B) warm air molecules transfer their heat to the wet canvas instead of to water inside the canteen
- (C) water evaporating from the canvas absorbs heat from the water inside the canteen
- (D) the wet canvas traps air between the canvas and the metal canteen

19. The reason the temperature of boiling water does not rise above 100 degrees Celsius is _____.

- (A) water becomes steam above 100 degrees Celsius
- (B) the energy needed to get water above 100 degrees Celsius is diverted into increasing water's kinetic energy
- (C) atmospheric pressure prevents water's temperature from rising above 100 degrees Celsius
- (D) water's intramolecular bonds are stronger than its intermolecular hydrogen bonds

20. For one gram of water molecules, the process that requires the most heat energy is _____.

- (A) A, C, E
- (B) A, B, C
- (C) C, D, E
- (D) B, D

- (A) heating the gram of ice by one degree Celsius
- (B) melting the gram of ice
- (C) heating the gram of water by one degree Celsius
- (D) evaporating the gram of water

21. Orange growers spray their trees with water to protect the trees from frost. Why?

- (A) The layer of water absorbs the cold before the leaves do.
- (B) The water's freezing releases heat that warms the leaves and oranges
- (C) The water on the leaves and oranges insulates the leaves and oranges
- (D) The water's freezing absorbs heat which is then transferred

22. This graph depicts the temperature of ice as it is heated. In which sections of this graph is potential heat increasing?

