



## Matter Changing States Quiz

1. What are the three main states of matter?
  - A. Solid, liquid, and gas
  - B. Ice, water, and steam
  - C. Temperature, pressure, and energy
2. What is matter?
  - A. Anything that is visible
  - B. Anything that has mass and takes up space
  - C. Anything that reflects light
3. What type of change is a change in state?
  - A. A physical change
  - B. A chemical change
  - C. A molecular change
4. How do the molecules in a solid move?
  - A. They bounce off one another randomly
  - B. They flow past one another
  - C. They vibrate
5. The heat required to change a solid into a liquid is its:
  - A. Heat of vaporization
  - B. Heat of condensation
  - C. Heat of fusion
6. What is the melting point of water?
  - A. 0 degrees Fahrenheit
  - B. 0 degrees Celsius
  - C. 0 Kelvin
7. The heat required to change a liquid into a gas is its:
  - A. Heat of steam
  - B. Heat of gaseousness
  - C. Heat of vaporization
8. What is it called when a solid turns directly into a gas?
  - A. Sublimation
  - B. Vaporization
  - C. Melting
9. What is dry ice?
  - A. Frozen water
  - B. Solid carbon dioxide
  - C. Ice that gives off water vapor
10. How do the molecules of a gas behave?
  - A. They vibrate in place
  - B. They clump together
  - C. They bounce around randomly



## Temperature Quiz

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1. How much of the matter in the universe is comprised of molecules?
  - A. One-half of one percent
  - B. All of it
  - C. Fifty percent
2. What creates heat?
  - A. The movement of molecules
  - B. Molecules standing still
  - C. The absence of molecules
3. What does temperature measure?
  - A. How fast molecules are moving
  - B. How much a person sweats
  - C. How much potential energy is exerted
4. What happens when you heat something up?
  - A. Its molecules stop moving
  - B. Its molecules move faster
  - C. Its molecules move more slowly
5. What happens when molecules start moving faster?
  - A. The temperature falls
  - B. The temperature rises
  - C. The temperature stays the same
6. Which of these instruments is used to measure temperature?
  - A. A barometer
  - B. A triple-beam balance
  - C. A thermometer
7. Which temperature scale is the most commonly used throughout the world?
  - A. Celsius
  - B. Fahrenheit
  - C. Kelvin
8. What is the freezing temperature of water on the Celsius scale?
  - A. 0 degrees Celsius
  - B. 32 degrees Celsius
  - C. 273 degrees Celsius
9. What is absolute zero?
  - A. The temperature at which ice begins to form
  - B. The average temperature of the universe
  - C. The temperature at which all molecular motion stops
10. How does a thermometer work?
  - A. Heat causes the liquid to contract, boosting the mercury level
  - B. Heat causes the liquid to expand, making the mercury level rise
  - C. Scientists aren't exactly sure



# Heat Quiz

- Heat is a form of:
  - Light
  - Energy
  - Time
- When do objects heat up?
  - When they are in a vacuum
  - When they are placed on a high point
  - When they are exposed to energy
- When a substance heats up, what happens to its molecules?
  - They gradually slow down and contract
  - They move around faster and bump into each other
  - Heat does not cause any molecular changes
- Absolute zero is:
  - The temperature at which molecules stop moving
  - 273 degrees Celsius
  - Tim's high-school nickname
- What is the difference between heat and temperature?
  - Temperature measures the motion of molecules, and heat is this energy of that motion
  - Temperature is read by a thermometer, and heat is read by a stepping scale
  - Heat is measured in calories, and temperature is measured in joules
- What happens when two objects of different temperatures are put next to each other so they are:
  - They gradually become the same temperature
  - They switch temperatures
  - The colder object gets colder and the warmer object gets warmer
- What happens if you add lots of heat to a liquid substance?
  - It turns into a plasma
  - It turns into a solid
  - It turns into a gas
- Which takes up the most space?
  - A cube of steel at 0C
  - The same cube of steel at 50C
  - The same cube of steel at 100C
- What causes wood and gas to give off heat when they're burned?
  - The chemical energy stored within them
  - Electrical energy
  - Solar energy
- Why is there more heat in an iceberg than in a pot of boiling water?
  - Boiling water is actually very cold
  - The iceberg contains many more molecules
  - Icebergs are red-hot to the touch

Bill Nye:

## Phases of Matter



### True or False? Circle T or F

- The atoms or molecules in solids have no motion. T or F
- Energy must be removed from a liquid to change it to a solid. T or F
- Molecules in the gas phase move faster than the same molecules move in the liquid phase. T or F
- Nitrogen changes from a liquid to a gas at the same temperature at which water changes from a liquid to a gas. T or F
- There is enough energy in air at room temperature to change some liquids to gases. T or F
- The temperature of ice water is lower than the temperature of dry ice in alcohol. T or F
- Carbon dioxide can change directly from the solid phase to the gaseous phase. T or F

### Multiple Choice: Circle the letter of the best answer

- Which of the following is a correct description of what happens when you place a liquid in the freezer?
  - Energy removed from the liquid remains in the freezer.
  - Energy from the freezer is absorbed by the liquid.
  - Energy from the liquid is exhausted into the atmosphere outside the freezer.
  - None of the above.
- Which of the following statements correctly represents the relationship between molecular motion and pressure?
  - The greater the molecular motion, the less pressure the molecules exert.
  - The greater the molecular motion, the greater the pressure the molecules exert.
  - Molecular motion is not related to the pressure the molecules exert.
  - None of the above.
- Which of the following statements about absolute zero is correct?
  - Absolute zero is the temperature at which there is no molecular motion.
  - Absolute zero is the temperature at which there is the absolute maximum molecular motion.
  - Absolute zero is 0° Celsius.
  - Absolute zero is 0° Fahrenheit.