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1 What is matter? Choose the best answer.

- A Anything that is solid
- B Anything that takes up space
- C Anything that has a fixed volume
- D Anything that can be seen

2  In what way are liquids different from solids?

- A Liquid molecules are lighter than solid molecules
- B Liquids are made of atoms; solids are made of molecules
- C Liquids don't have a fixed shape; solids do
- D Liquids are always denser than solids

3 What happens to the chemical structure of water when it changes state?

- A Water molecules break apart to form individual atoms
- B Water molecules harden into ice molecules
- C Water molecules melt into gas molecules
- D Nothing happens to the chemical structure

4 What will happen if you keep increasing both the pressure and temperature of a liquid?

- A It will boil
- B It will transpire
- C It will melt
- D It will solidify

5 What do lightning and stars have in common?

- A Both have no electrical charge
- B Both contain plasma
- C Both have a fixed volume
- D Both contain all three states of matter

6 Water's chemical formula is "H₂O." What does this mean?

- A Water is composed of hydrogen molecules and oxygen molecules
- B A gram of water contains 20 hydrogen atoms
- C Each water molecule contains two hydrogen atoms and one oxygen atom
- D Water molecules cannot be split into smaller pieces

7 What is the basic shape of a liquid?

- A A sphere
- B The same shape as a gas, only rounder
- C A cube
- D Whatever the shape of its container is

8 How can you remove energy from matter?

- A By increasing its volume
- B By lowering its temperature
- C By increasing its pressure
- D By boiling it

9 Gases have a tendency to expand. What's the best synonym for "expand"?

- A Collide
- B Spread out
- C Shrink
- D Boil

10 Where would you find a Bose-Einstein condensate?

- A Inside stars
- B At the North Pole
- C In a science lab
- D Bose-Einstein condensates exist only in theory

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1 What are the three main states of matter?

- A** Solid, liquid, and gas
- B** Ice, water, and steam
- C** Temperature, pressure, and energy
- D** Hot, cold, and warm

2 Compared to ice, how do molecules of water behave?

- A** They move less freely
- B** They are locked into a crystal lattice
- C** They move more freely
- D** They bounce off one another randomly

3 What is matter?

- A** Anything that is visible
- B** Anything that has mass and takes up space
- C** Anything that reflects light
- D** Anything that absorbs light

4  **What do water vapor, liquid water, and ice have in common?**

- A** The same crystal lattice structure
- B** The same amount of energy
- C** The same physical properties
- D** The same chemical properties

5 What's the easiest way to add energy to matter?

- A** Heating it
- B** Cooling it
- C** Decreasing pressure
- D** Decreasing temperature

6 The melting point of H₂O is 0 degrees Celsius. This is the same as its:

- A** Boiling point
- B** Vaporization point
- C** Fusion point
- D** Freezing point

7 What is it called when a solid turns directly into a gas?

- A** Sublimation
- B** Vaporization
- C** Melting
- D** Fusion

8  **Dry ice has the same chemical properties as what gas?**

- A** Helium
- B** Hydrogen
- C** Nitrogen
- D** Carbon dioxide

9 How do the molecules of a gas behave?

- A** They vibrate in place
- B** They bounce around randomly
- C** They are locked in a crystal lattice
- D** They clump together

10  **If you put a thermometer into a pot of melting ice, when will the temperature rise past zero?**

- A** As soon as the ice begins to melt
- B** After most of the ice has melted
- C** When the ice begins turning into steam
- D** When all the ice has melted