

Pg. 161 #1-11

1. A physical property describes the appearance of a substance or some other characteristic that can be observed or measured.

2.

(a) Some physical properties of water are that it is a clear, colourless liquid at room temperature; it expands when it freezes; its freezing/melting point is 0°C; and its condensing/boiling point is about 100°C.

(b) Four physical properties of iron are that it is a solid (at room temperature), grey, dull, magnetic metal.

(c) Some physical properties of baking soda are that it is a fine white powder that clumps in water and iodine.

3. A chemical property describes how a substance reacts to other substances or to light or heat.

4. (a) Melting is a physical change.

(b) Corrosion is a chemical change.

(c) Burning is a chemical change.

(d) Stretching is a physical change.

(e) Boiling is a physical change.

5. Iron and copper would make good conductors.

6. Malleability refers to how easily a substance can be pounded or rolled into sheets, while ductility refers to the ability of a substance to be stretched into a wire.

7. I would rather mop up spilled milk with a paper towel than a plastic bag. There would be adhesion between the milk and the paper towel; the milk would stick to itself due to cohesion. There would not be any adhesion between the milk and a plastic bag.

8. (a) Melting is a physical change.

(b) State of matter is a physical property.

(c) Chopping produces a physical change.

(d) Hardness is a physical property.

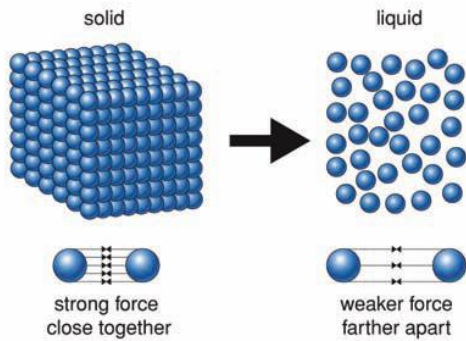
(e) The characteristic of "bendiness" is a physical property.

(f) Colour is a physical property.

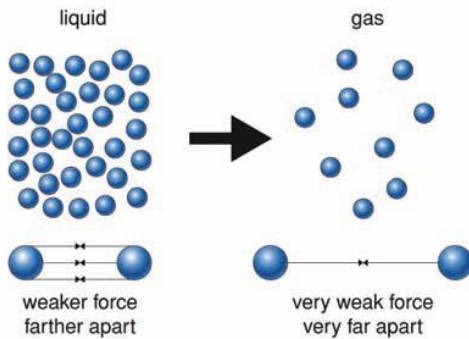
9. The cohesion of water makes it pull in toward the centre of the meniscus; the adhesion of water to glass pulls the water up at the sides of the graduated cylinder.

10.

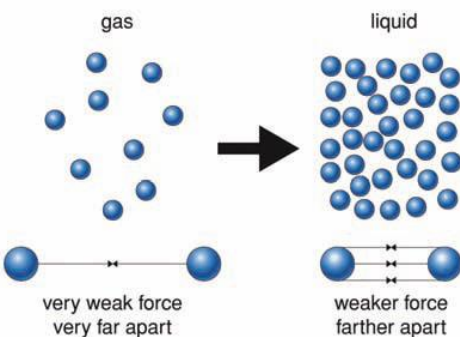
(a) As heat is added, the particles in the butter move faster and farther apart, changing the state of the butter from solid to liquid.



(b) As water in a kettle is heated on the stove, the particles move faster and farther apart, changing the state of the water from liquid to gas.



(c) As water vapour cools, heat is being removed. The particles of water vapour slow down and move closer together, changing the state of the water from gas to liquid.



11. Students' explanations may vary but could include various observations and conclusions—for example, vegetable oil may freeze in an extra cold fridge but water does not; vegetable oil from the fridge is quite viscous but water is not.