P4.1 Matter Pre-Unit Quiz

1. In which state(s) of matter are particles free to move? [1]
   Tick (✓) **one** box.

   (a) Solids and liquids ☐

   (b) Liquids and gases ☐

   (c) Gases only ☐

2. In which state of matter do particles have the most energy? [1]
   Tick (✓) **one** box.

   (a) Solid ☐

   (b) Liquid ☐

   (c) Gas ☐

3. Which state(s) of matter can be compressed? [1]
   Tick (✓) **one** box.

   (a) Gases only ☐

   (b) Liquids and gases ☐

   (c) Solids, liquids and gases ☐

4. Water is boiled in a kettle. Which statement correctly describes what has happened to the particles? [1]
   Tick (✓) **one** box.

   (a) Water particles (liquid) have turned into steam particles (gas) ☐

   (b) Particles have more energy so they are able to move more quickly in random directions ☐

   (c) Water particles have chemically reacted with oxygen to form steam ☐

5. A student filled and sealed two syringes, one with a gas and the other with a liquid, as shown in **figure 1**.

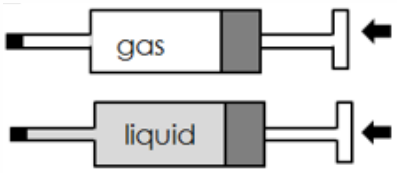


Figure 1

Figure 2 shows the syringes after the plungers were pushed.

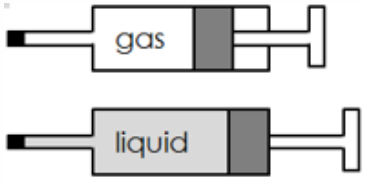


Figure 2

Choose the statement that explains why the gas was compressed more than the liquid. [1]

Tick (✓) **one** box.

(a) The particles in gases are more spread out than the particles in liquids ☐

(b) The particles in gases have less mass than the particles in liquids. ☐

(c) The particles in gases are softer than the particles in liquids ☐

6. Which best explains why oil floats on water? [1]

Tick (✓) **one** box.

(a) Oil is lighter than water ☐

(b) Oil is less dense than water ☐

(c) Oil is more dense than water ☐

7. Which state of matter has the greatest density? [1]

Tick (✓) **one** box.

(a) Solid ☐

(b) Liquid ☐

(c) Gas ☐

8. Choose the correct definition of internal energy. [1]

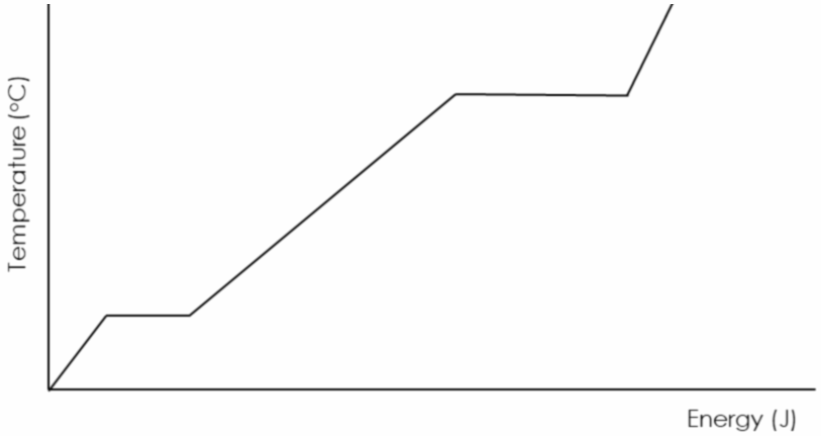
Tick (✓) **one** box.

(a) The total kinetic energy of all the particles in a system ☐

(b) The total kinetic and potential energy of all the particles in a system ☐

(c) The total energy transferred when a substance changes state ☐

9. A student has plotted a heating curve of water.



Choose the statement that is correct for line AB.

Tick (✓) **one** box.

(a) Kinetic energy and potential energy are increasing ☐

(b) Kinetic energy and internal energy are increasing ☐

(c) Potential energy and internal energy are increasing ☐

10. An object has a mass of 10 g and a volume of 2 cm^3.

Choose the density of this object. [1]

Tick (✓) **one** box.

A. 0.2 g/cm^3 ☐

B. 5 g/cm^3 ☐

C. 20 g/cm^3 ☐

Total = ___ /10