

3.1

A student has a beaker of water at 20°C which is placed on a tripod. A Bunsen burner is placed underneath the beaker and a lid is then placed on top of the beaker. The Bunsen burner is turned on, heating the water until it starts to boil at 100°C .

Describe and explain the changes in the arrangement and movement of the particles as the water's temperature rises and then boils.

In a liquid the particles are close together, moving randomly and are free to move around one another.

As the temperature increases the particles move faster as they gain kinetic and potential energy.

When the liquid starts boiling the temperature remains constant. This is because all the energy supplied isn't increasing the kinetic energy of the particles, it is increasing their potential energy.

As it turns into a gas the particles spread out and move randomly in all directions with a range of speeds.

6 marks

3.2

Boiling is an example of a physical change.

Explain how a physical change is different to a chemical change

A physical change can be reversed - and the material retains its original properties.

1 mark

3.3

State what happens to the mass of the water as it boils to become a gas.

The mass of water remains the same (it has just changed state).

1 mark