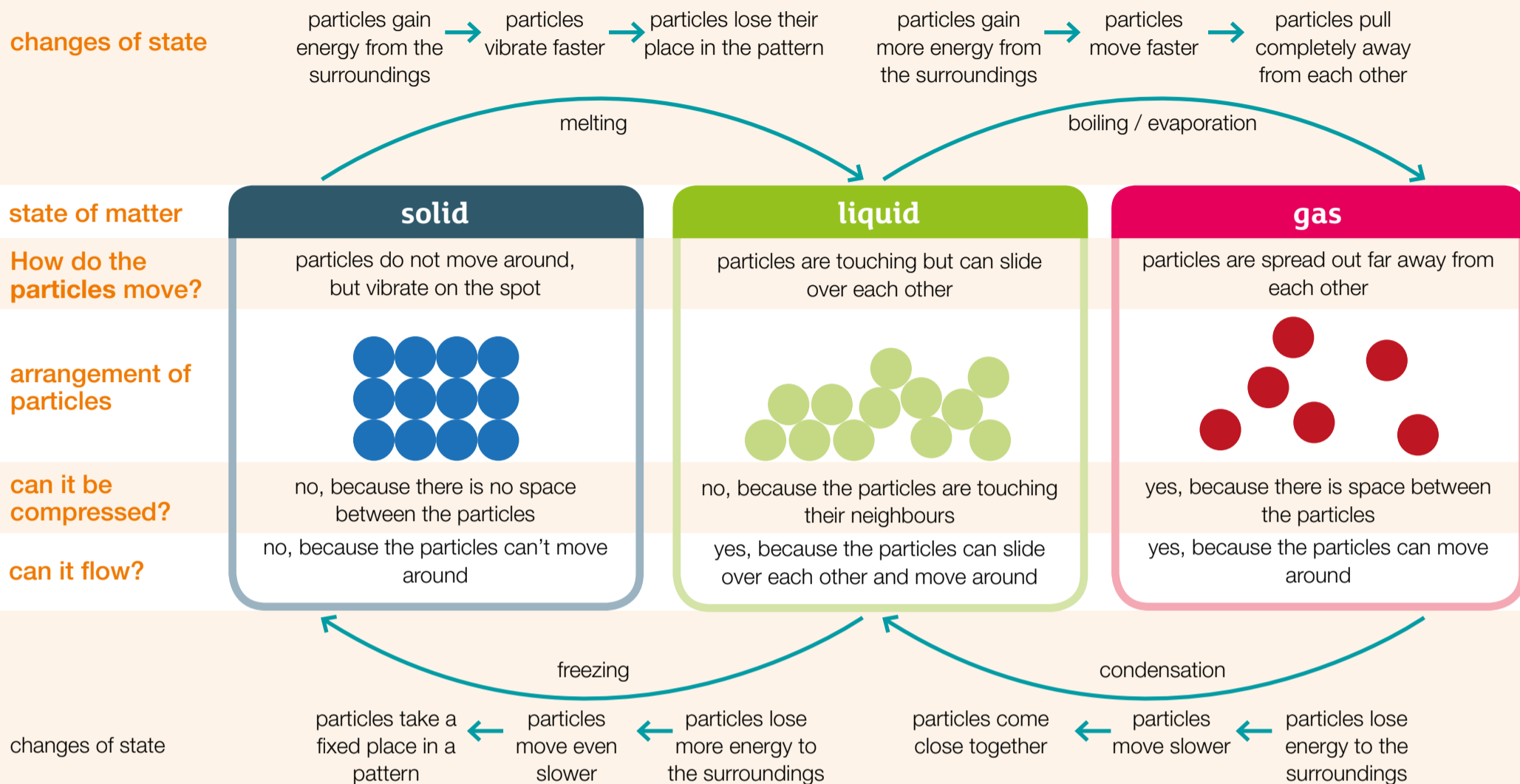


Knowledge organiser



Sublimation

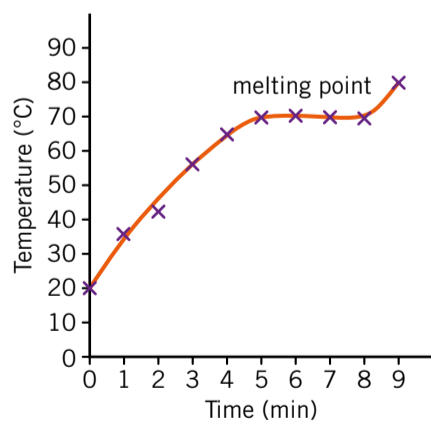
Some solids do not exist as liquids, but instead directly change state from solid to gas in a process called sublimation.

Melting and boiling points

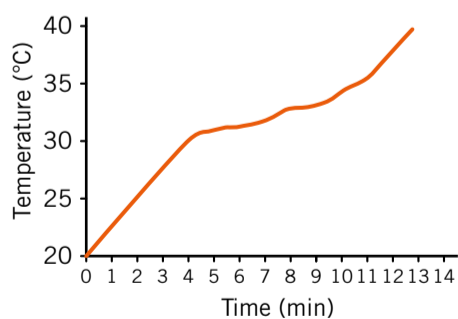
Melting point — the temperature at which a **substance** melts

Boiling point — the temperature at which a substance boils

If you heat a **solid** and plot a graph of temperature against time:



the melting point will appear as a flat line if the substance is **pure** (has only one type of particle).



If you don't see a flat line, the substance is a mixture (has different types of particle).

Diffusion

Particles move about randomly in liquids and gases and spread out through **mixtures**. This process is called diffusion. How quickly diffusion happens depends upon three variables:

Variable	Effect on diffusion
temperature	diffusion is faster at higher temperatures <i>because</i> particles move faster when hotter
particle size	diffusion is slower with larger, heavier particles
state of matter	diffusion is: <ul style="list-style-type: none"> • fast in gases • slow in liquids • doesn't happen in solids

Gas pressure

Gas particles move around, colliding with the walls of a container they are in. This causes a force called pressure. It depends on three variables:

Variable	Effect on gas pressure
temperature	Pressure increases at higher temperatures <i>because</i> particles move faster and therefore collide more frequently with the container.
particle size	Pressure increases with greater numbers of particles <i>because</i> there are more particles colliding with the walls of the container.
state of container	Pressure decreases as the size of container increases <i>because</i> particles have more space to move around, so they don't collide with the walls of the container as often.



Key terms

Make sure you can write a definitions for these key terms.

boiling boiling point change of state condensation diffusion evaporation freezing gas liquid melting
mixture particle solid state of matter sublimation substance