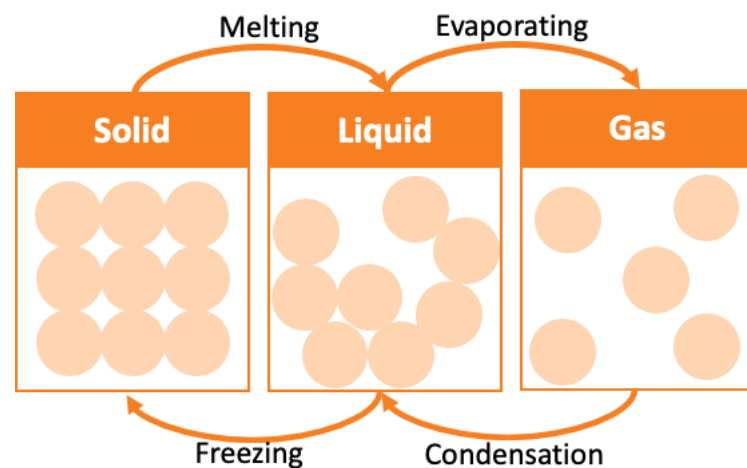


Must Remember

- Materials are made of tiny particles.
- A substance is made of just one type of material.
- The properties of a substance describe what it looks like and how it behaves.
- The properties of a substance depend on what its particles are like, and how they are arranged.
- There are three states of matter – solid, liquid, and gas.
- In the solid state, you cannot compress a substance, or make it flow.
- In the liquid state, you cannot compress a substance, but you can make it flow.
- In the gas state, you can compress a substance, and make it flow.
- The change of state from solid to liquid is melting. A substance melts at its melting point. Pure substances have a sharp melting point.
- A substance changes from the liquid state to the gas state by evaporating or boiling. A substance boils at its boiling point.
- The change of state from gas to liquid is condensing.
- The change of state from liquid to solid is freezing.



- Some substances change directly from the solid state to the gas state. This is subliming.
- Diffusion is the random moving and mixing of particles.
- Gas particles collide with the walls of their container. The collisions cause gas pressure.

Nice to know that...

- Solids melt as solid particles gain energy from the surroundings, this makes the particles vibrate faster, the particles lose their place in the pattern and form a liquid.
- Liquids evaporate because particles gain more energy from the surroundings, this makes particles move faster, this causes the particles to pull completely away from each other forming a gas.
- Gases condense to form liquids as the gas particles lose energy to the surroundings, this causes the particles to move slower and come close together to form a liquid.
- Liquids freeze because they lose energy to the surroundings, the particles move even slower causing the particles to take a fixed place in a pattern.
- Temperature, particle size and state of matter all change the rate of diffusion.
- Temperature, particle size and state of container can change gas pressure.



Maritime Futures – Sea Water

Sea water has different properties compared to pure water as sea water is an impure liquid which contains salt. The salt is dissolved in the water, this changes the boiling point and freezing point of water. The salt also increases the density of the water. This is important to the maritime industry as ice floats on sea water and therefore can cause problems navigating.

Key Terms

material:

the different types of stuff that things are made from

mixture:

a material whose properties are not all the same all the way through

particle:

the tiny things that materials are made from

substance:

a material that is not a mixture. It has the same properties all the way through

Further Study

[BBC Bitesize – Solids, liquids and gases](#)