

Year 4 – States of Matter (particles)

Vocabulary

particles	Everything in the universe is made up of tiny units called particles that cannot be seen with the human eye
matter	The physical substances or material that make up the world around us
state	The condition of a material at a particular time
state of matter	The way a material behaves at a particular time
properties	The features or characteristics of a particular material
vibration	All particles move continuously in a shaking movement
fixed position	Not able to move in different directions
attraction	A bond that pulls particles together
force	How strong or weak the attraction between particles is

The Three States of Matter

	Particle behavior	Properties of material
Solid	<ul style="list-style-type: none"> • Particles are held together • Arranged in a regular way • Fixed positions • Strong force of attraction 	<ul style="list-style-type: none"> • Holds its shape, unless you bend, stretch or cut it • Stays in one place • Always take up the same amount of space
Liquid	<ul style="list-style-type: none"> • Roll over each other • Close together • Arrange in a random way • Weaker force of attraction 	<ul style="list-style-type: none"> • Can flow or be poured • Change shape to fit the container they are in
Gas	<ul style="list-style-type: none"> • Far apart • Arranged in a random way • Very weak forces of attraction between particles 	<ul style="list-style-type: none"> • No fixed shape or volume • Fill any space available

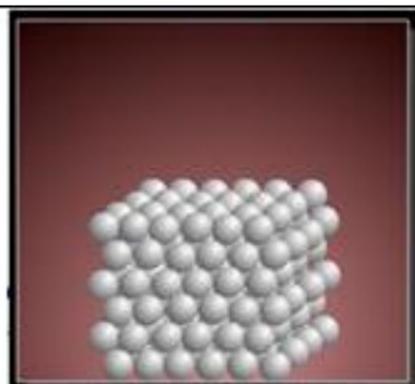
Scientific Concepts

Particles

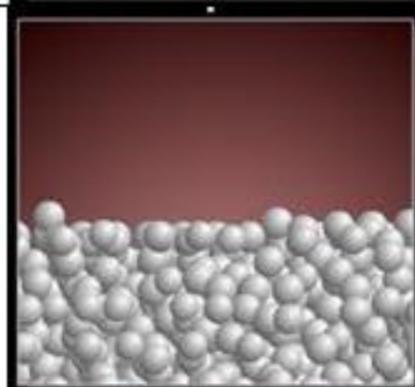
- Everything is made up of particles.
- Particles continuously vibrate.
- Particles in different materials behave in different ways and have different structures.
- Materials can be classified according to the behaviour and structure of their particles.
- Materials exist in different states; these are solid, liquid or gas.

Scientific Diagrams

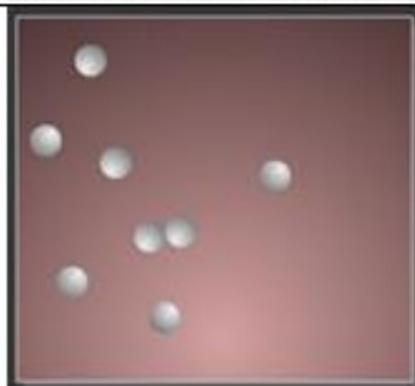
Solid



Liquid



Gas



Quiz

What is everything made up out of?	Everything is made up out of particles that cannot be seen with the human eye.
In what way do particles move?	Particles continuously vibrate.
What are the properties of a solid?	A solid material keeps its shape, cannot flow and always takes up the same amount of space. A solid is usually hard.
How do gas particles behave?	Gas particles are not attracted to each other so they are spread out. They are arranged in a random way.
How are liquid particles arranged?	Liquid particles are arranged in a random way. They roll over each other.
Name the three different states of matter:	Materials can be either a solid, a liquid or a gas.
What defines whether a material is a solid, liquid or a gas?	The behaviour of the particles defines whether a material is a solid, liquid or gas.
Draw a diagram to represent the particles in a gas:	