Science: Changing States

What are solids, liquids and gasses?
Everything is made up of tiny particles.
The properties of a substance depend on what its particles are like, how they move and how they are arranged. The particles in a substance are the same whether it's in the solid, liquid or gas state, but their arrangement and movement change.

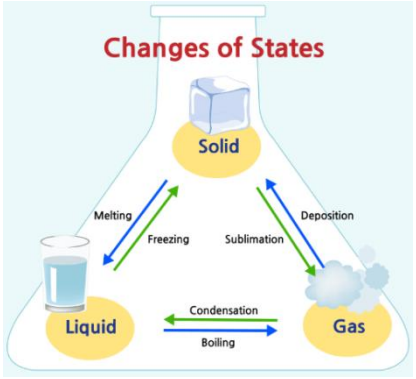
How do solids, liquids and gases differ?
Solids: In the solid state the vibrating particles form a regular pattern. This explains the fixed shape of a solid and why it can't be compressed or poured.
Liquids: In a liquid the particles still touch their neighbours but they move around, sliding over each other. This is why you can pour, but not compress, a liquid.
Gases: In the gas state, widely-spaced particles move around randomly. This explains why you can compress gases and why they flow.

Why do substances have different melting points?
Different solids have different melting points depending on the strength of bonding between the particles and the mass of the particles. Essentially, the heavier the particles in the solid, and the stronger the bonding, the higher the melting point.

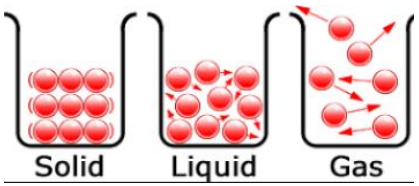
Key Vocabulary

Term	Definition
solid (noun)	A substance that is firm and stable in shape.
liquid (noun)	A substance that flows freely but is of constant volume.
gas (noun)	A substance or matter in a state in which it will expand freely to fill the whole of a container.
matter (noun)	A physical substance which occupies space and possesses mass.
particle (noun)	A minute portion of matter.
dissolve (verb)	To incorporate into a liquid and form a solution.
melt (verb)	To make or become liquefied by heat.
soluble (noun)	A substance than can be dissolved.
insoluble	A substance that cannot be dissolved.
solution (noun)	A solid dissolved in a liquid.

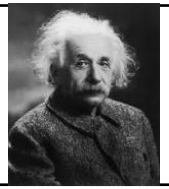
Key Diagram 1



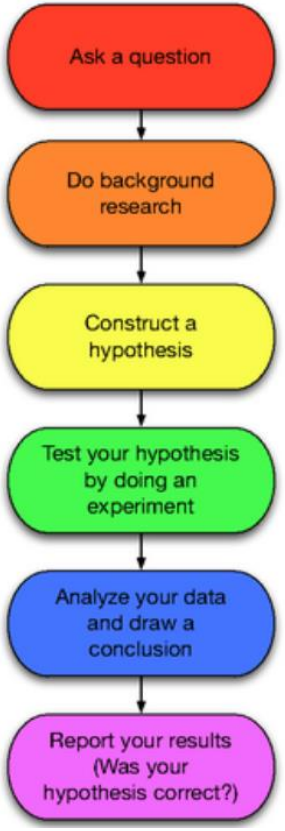
Key Diagram 2



Key Figures

Albert Einstein	John Dalton	Galileo Galilei
		

The Scientific Method



"Science is simply the word we use to describe the method of organising our curiosity." – Tim Minchin

1609: The moon is observed for the first time by Galileo using a telescope

1687: Newton discovers the law of gravity and motion

1751: Benjamin Franklin establishes that lightening is electrical (kite).

1859: Charlies Darwin publishes Theory of Evolution

1905: Albert Einstein's theory of relativity E=MC2

1927: Lemaître produces the Big Bang theory

1969: The moon is walked on for the first time by Neil Armstrong

1997: Dolly the sheep is cloned by the Roslin Institute