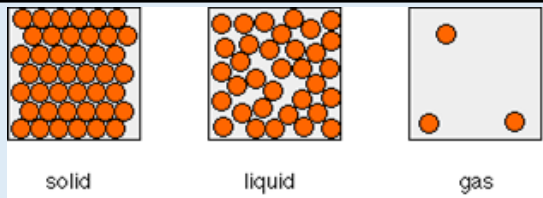


1: The Particle Model

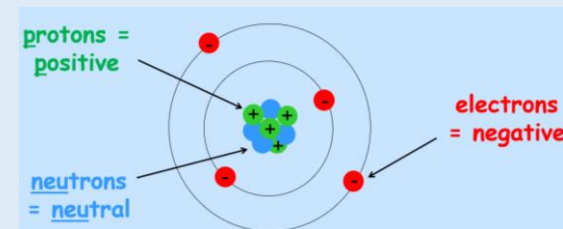


Particle Diagram	Particles	Properties
Solid	regular arrangement	do not flow, cannot be compressed
Liquid	move randomly	flow, cannot be compressed
Gas	move randomly at high energy	flow, can be compressed

2: Physical and Chemical Changes

Particle	the smallest piece of matter
Chemical change	a chemical reaction in which a new substance is formed, usually irreversible
Physical change	a change where no substances is formed, usually reversible
Change of state	a physical process where matter changes state
Reversible	able to go back to the starting state
Irreversible	unable to go back to the starting state

3: Atomic Structure



Sub-atomic Particle	Relative Charge	Relative Mass	Position in Atom
electron	-1	0.0005	shell
proton	+1	1	nucleus
neutron	0	1	nucleus

Atomic Number The number of protons in the nucleus

Mass Number The number of protons and neutrons in the nucleus

4: Electronic Configuration

5: History of the Atom

6: Isotopes and Ions

Electron	negative subatomic particle found in shells around the nucleus
Electron Shell	the outside part of an atom around the atomic nucleus
Periodic Table	a table of the chemical elements arranged in order of atomic number
Group	a column in the periodic table in which elements have the same number of outer shell electrons
Period	a row in the periodic table in which elements have the same number of shells
Energy Level	Number of Electrons
1	2
2	8
3	8

Scientist	Model	Description
John Dalton	Solid Sphere Model	small, solid, inelastic spheres
J.J Thompson	Plum Pudding Model	negative electrons evenly spaced in a positive mass
Ernest Rutherford	Nuclear Model	mostly empty space with a positive mass in the centre
Niels Bohr	Planetary Model	electrons are in shells which orbit the nucleus

Ion	an atom or molecule with an electric charge due to the loss or gain of electrons
Positive Ion	an atom or molecule with a positive charge due to the loss of electrons
Negative Ion	an atom or molecule with a negative charge due to the gain of electrons
Isotope	atoms of the same element with the same number of protons but a different number of neutrons
Model	a description or analogy that explains the physical world

<u>1: Density</u>	<u>2: Calculating Density of Irregular Objects</u>	<u>3: Heating and Cooling Graphs</u>
<p>Density the mass per unit volume</p> <p>Volume of a Regular Object calculated by length x width x height</p> <p>Mass Balance a piece of equipment used to measure the mass of an object</p> <p>Zero Error any indication that a measuring system gives a false reading when the true value of a measured quantity is zero</p> <p style="text-align: center;">density = mass ÷ volume $\text{kg/m}^3 \quad \text{kg} \quad \text{m}^3$</p>	<p>Eureka/ Displacement Can a large container with a spout used to measure the displacement of water when an object is lowered into it</p> <p>Displaced when something is moved from it's original position</p> <p>Irregular not even or balanced in shape or arrangement</p> <p>Measuring Cylinder a piece of equipment used to measure the volume of a liquid</p> <p>Calculate determine the amount or number of something mathematically</p>	<p>Change of State the process of one state of matter changing to another</p> <p>Melting Point the temperature at which a given solid will melt to a liquid</p> <p>Boiling Point the temperature at which a liquid boils and turns to vapour</p> <p>Freezing the process by which a liquid turns into a solid</p> <p>Melting the process by which a solid turns into a liquid</p> <p>Evaporation the process by which a liquid turns into a gas</p> <p>Boiling the process of bringing a liquid to the temperature at which it bubbles and turns to vapour</p> <p>Condensation the process by which a gas turns into a liquid</p>
<u>4: Specific Latent Heat</u>	<u>5: Specific Heat Capacity</u>	<u>6: Gas Pressure</u>
<p>Latent lying dormant or hidden</p> <p>Specific Latent Heat the energy needed to change the state of 1kg of a substance without changing its temperature</p> <p>Specific Latent Heat of Fusion the energy needed to change the state of 1kg of a substance from a solid to a liquid or vice versa</p> <p>Specific Latent Heat of Vaporisation the energy needed to change the state of 1kg of a substance from a liquid to a gas or vice versa</p> <p>Energy (J) = mass (kg) x specific latent heat (J/kg)</p>	<p>Capacity the amount that something can contain</p> <p>Specific Heat Capacity the energy required to raise 1kg of a material by 1°C</p> <p>Joulemeter a piece of equipment used to measure energy</p> <p>Thermometer a piece of equipment used to measure temperature</p> <p style="text-align: center;">Energy (J) = mass (kg) x SHC (J/kg°C) x change in temperature (°C)</p>	<p>Collision when two or more objects come into contact with each other</p> <p>Gas Pressure the name given to the force exerted by gas particles colliding with the wall of their container</p> <p>Temperature and Gas Pressure the higher the temperature the higher the gas pressure</p> <p>Volume and Gas Pressure the higher the volume the lower the gas pressure</p> <p>Motion of Gas Particles in gases, particles move rapidly in all directions</p> <p style="text-align: center;">Pressure (Pa) = force (N) ÷ area (m²)</p>