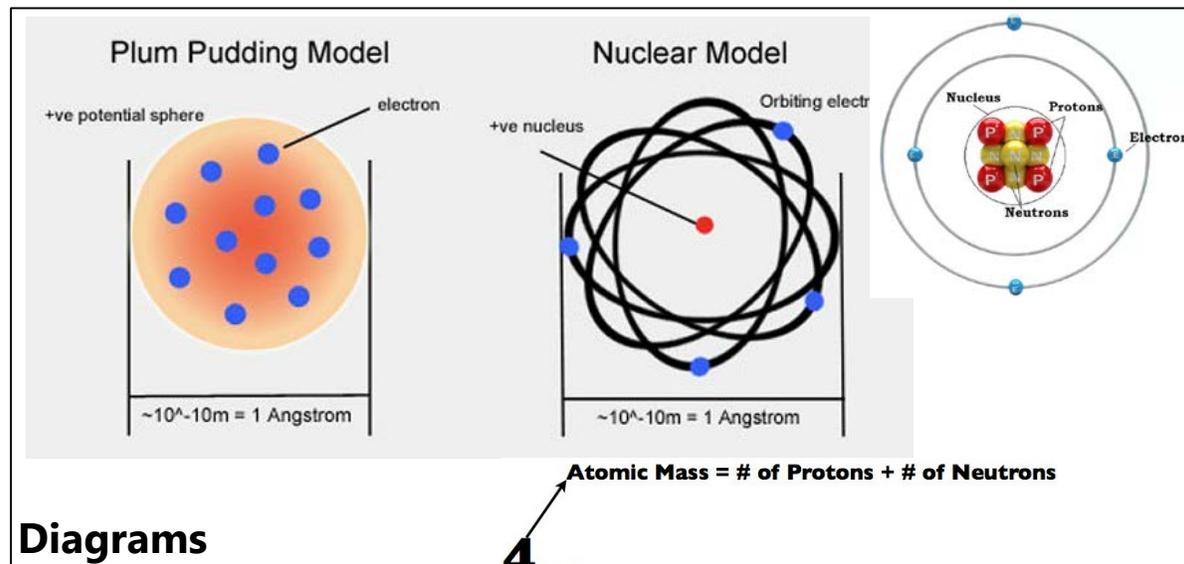


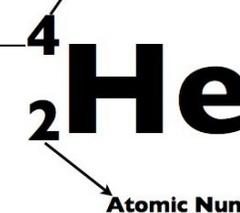
Knowledge and Content

- Use chemical symbols and formulae to describe elements and compounds
- Know that the atoms in an element are all the same and use symbols and formulae to represent elements and compounds and simple chemical reactions
- Describe the similarities and differences between protons, neutrons and electrons
- Describe the arrangement of electrons in shells or energy levels
- Distinguish metals from non-metals
- Exploring group 0, 1 and 7

Periodic Table of the Elements



Diagrams



Knowledge Organiser – Atomic Structure and the Periodic Table

Mathematical and Practical Skills

- Understand how different techniques are used to separate mixtures
- Recognise and use standard form in calculations

Ordinary Number	Standard Form
29	2.9 × 10 ¹
350	3.50 × 10 ²
4716	4.716 × 10 ³
600000000	6 × 10 ⁸
0.3	3 × 10 ⁻¹
0.09	9 × 10 ⁻²
0.0071	7.1 × 10 ⁻³
0.000502	5.02 × 10 ⁻⁴

SEPARATING MIXTURES

SIEVING
Can separate large particles from small particles.

FILTRATION
Can separate solids that are insoluble from a liquid.

EVAPORATION
Can separate solids that are soluble from a liquid.

CONDENSATION
Condensing is when water vapour changes into liquid water.

CHROMATOGRAPHY
Can separate different colour dyes.

DISTILLATION
Can separate a solvent from a solution.

Key Terms

Atom	A particle with no electric charge made up of a nucleus containing protons and neutrons and surrounded by electrons.
Proton	A positively charged particle found in the nucleus of an atom.
Neutron	A neutral particle found in the nucleus of an atom.
Electron	Negatively charged particles found on energy levels (shells) surrounding the nucleus inside atoms.
Nucleus	Central part of an atom containing protons and neutrons.
Energy level (shell)	The region an electron occupies surrounding the nucleus inside an atom.
Atomic number	Number of protons in an atom.
Mass number	Number of protons plus neutrons in an atom.
Isotope	Atoms with the same number of protons but a different number of neutrons.
Relative atomic mass	The average mass of atoms of an element taking into account the mass and amount of each isotope it contains. $RAM = \frac{\text{Total mass of atoms}}{\text{total number of atoms}}$
Electronic structure	The arrangement of electrons in the energy levels of an atom.
Ion	An electrically charged particle containing different numbers of protons and electrons.
Group	The name given to each column in the periodic table.
Element	A substance containing only one type of atom.
Compound	A substance made from different elements chemically bonded together.
Period	The name given to a row in the periodic table.