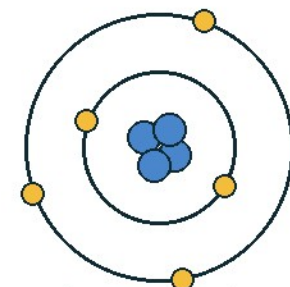


Chemistry: Atoms and Reactions

What things are made of and how they change

WHAT IS IT?

Chemistry studies matter: what it is made of, how its particles are arranged and how substances change into new ones. Everything around you is made of atoms.



nucleus + electrons

THE BIG IDEAS

- 1 An atom has a nucleus of protons and neutrons with electrons around it.
- 2 The periodic table organizes elements by their number of protons, with similar elements in the same column.
- 3 Atoms join by sharing or transferring electrons to form bonds.
- 4 In a reaction atoms rearrange, and the number of each kind of atom stays the same.

YOU SEE IT WHEN ...

Cooking, baking and cleaning

Batteries and fuels

Medicines and new materials

WORDS YOU WILL MEET

Element

a pure substance made of atoms with the same number of protons

Compound

two or more different elements bonded together in a fixed ratio

Molecule

a group of bonded atoms

Mole

a counting unit: one mole is about 6.02×10^{23} particles

pH

a scale of how acidic or basic a liquid is

Reaction

a change that makes new substances

GOOD TO KNOW FIRST

Fractions, ratios and basic algebra.

IN YOUR COURSE YOU WILL ...

- Atomic structure and the periodic table
- Bonding and molecules
- Balancing chemical equations
- Moles, solutions, acids and bases

Start tip: Count the atoms on each side when you balance an equation.