

Revision Topics Guidance

For the November 2025 Core Assessments for Year 11 Students



REVISION TOPICS GUIDANCE

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GCSE ENGLISH LANGUAGE – 45MIN EXAM

GCSE English Language paper 1 - Topic Content to Focus Revision On

Paper 1 Section B – Writing Paper

Make yourself familiar with the content of the English Writing KO on the Student Hub.

For paper 1 you are writing to **describe, entertain and impress**. You want to show how impressively you can either describe or create an engaging story. You need to show that you can create **TONE, IMAGERY and EMOTION** for your reader through your use of the English language.

Practice PLANNING for 5 minutes and writing/proofreading for 40 minutes.

Practice Papers can be found here: AQA Papers

• Complete the homework tasks that the English Team have set up to help you revise for the exam: Writing Revision

GCSE MATHEMATICS - 2 x 1HR 30MIN EXAMS

GCSE Mathematics – Topic content as a focus for revision

The Mathematics Team have set up two tasks on MathsWatch that will specifically assist you in revising for these papers. Go to https://vle.mathswatch.co.uk/vle/ and use:

Username – 21InitialSurname@tytheringtonschool (e.g.21APilbury@tytheringtonschool)

Password - abc123

There are also Sparx codes below that you can complete as independent learning.

Foundation Papers

- Reading, converting and calculating with time U902
- Converting between fractions, decimals and percentages U888
- Using the correct order of operations U976
- Finding prime numbers U739
- Adding and subtracting integers U417
- Interpreting bar charts U557
- Ordering fractions u746
- Calculating with speed U151
- Solving equations with two or more steps U325
- Using a written method to multiply integers U127
- Angles on a line and about a point U390
- Angles on parallel lines U826
- Converting units of length, mass and capacity U388
- Finding fractions of amounts without a calculator U881
- Dividing fractions U544
- Calculating with powers and roots U851
- Expanding single brackets U179
- Factorising into one bracket U365
- Expected results from repeated experiments U166
- Problem solving: Area and perimeter of rectangles and compound shapes U934
- Adding and subtracting fractions U736
- Multiplying fractions U475
- Percentage change without a calculator U773
- Interpreting frequency tables and two-way tables U981

GCSE Mathematics - Topic content as a focus for revision

- Calculating experimental probabilities U580
- Solving direct proportion problems U721
- Finding the highest common factor U529
- Plans and elevations U743
- Combining transformations U766
- Combining ratios U921
- Sharing amounts in a given ratio U577
- Solving quadratic equations graphically U601
- Sketching quadratic graphs U310
- Understanding and ordering integers U600
- Finding factors and using divisibility tests U211
- Using algebraic notation U613
- Simplifying expressions using index laws U662
- Drawing and interpreting pictograms U506
- Substituting into expressions U201
- Writing and simplifying ratios U687
- Finding percentages of amounts with a calculator U349
- Writing probabilities as fractions, decimals and percentages U510
- Drawing and interpreting scale diagrams U257
- Constructing loci U820
- Solving single inequalities U759
- Reading and drawing inequalities on number lines U509
- Plotting straight line graphs U741
- Sampling and bias U162
- Finding the volume of cubes and cuboids U786
- Finding unknown sides in right angles triangles U283
- Finding error intervals for truncated numbers U301
- Sharing amounts in a given ratio U577
- Using standard form with positive indices U330
- Using standard form with negative indices U534
- Special sequences U680
- Adding and subtracting column vectors U903

Higher Papers

- Calculating experimental probabilities U580
- Solving direct proportion problems U721
- Finding the highest common factor U529
- Plans and elevations U743
- Combining transformations U766
- Combining ratios U921
- Sharing amounts in a given ratio U577
- Problem solving: Area and perimeter of rectangles and compound shapes U934
- Estimating calculations U225
- Rounding decimals using significant figures U965
- Index rules with negative indices U694
- Multiplying with mixed numbers U224
- Solving simultaneous equations graphically U836

GCSE Mathematics - Topic content as a focus for revision

- Drawing boxplots U879
- Growth and decay U988
- Writing algebraic proofs U582
- Using exact trigonometric values U627
- Mixed problems: finding the volume of cones and spheres U426
- Using the product rule for counting U369
- Calculating with ratios and algebra U676
- Adding and subtracting surds U872
- Rationalising the denominator containing a single term U707
- Completing the square U397
- Finding the turning point of a quadratic graph by completing the square U769
- Constructing direct proportion equations U407
- Constructing inverse proportion equations U138
- Finding inverse functions U996
- Finding composite functions U448
- Conditional probabilities from tree diagrams U806
- Solving single inequalities U759
- Reading and drawing inequalities on number lines U509
- Plotting straight line graphs U741
- Sampling and bias U162
- Finding the volume of cubes and cuboids U786
- Finding unknown sides in right angles triangles U283
- Finding error intervals for truncated numbers U301
- Sharing amounts in a given ratio U577
- Using standard form with positive indices U330
- Using standard form with negative indices U534
- Finding the surface area and volume of similar shapes U110
- Tree diagrams for independent events U558
- Drawing cumulative frequency graphs U182
- Interpreting cumulative frequency graphs U642
- Finding the area of sectors U373
- Finding the arc lengths of sectors U221
- Dividing algebraic fractions U824
- Estimating gradients of non-linear graphs using tangents U800
- Estimating areas under non-linear graphs U882
- Changing the subject when the subject appears more than once U191
- Equations of parallel and perpendicular lines U898
- Combining ratios U921
- Mixed problems: Circle theorems U808
- Trigonometry in 3D shapes U170
- Solving geometric problems using vectors U781

GCSE BIOLOGY (SEPARATE) - 1HR 15MIN EXAM

GCSE Biology (Separate) - Topic Content to Focus Revision On

The GCSE Biology Specification is available online at: AQA | Biology | GCSE | GCSE Biology

4.1 Cell biology

4.1.1 Cell structure

- 4.1.1.1 Eukaryotes and prokaryotes
- 4.1.1.2 Animal and plant cells
- 4.1.1.3 Cell specialisation
- 4.1.1.4 Cell differentiation
- 4.1.1.5 Microscopy
- 4.1.1.6 Culturing microorganisms (biology only)

4.1.2 Cell Division

- 4.1.2.1 Chromosomes
- 4.1.2.2 Mitosis and the cell cycle
- 4.2.1.3 Stem Cells

4.1.3 Transport in cells

- 4.1.3.1 Diffusion
- 4.1.3.2 Osmosis
- 4.1.3.3 Active transport

4.2 Organisation

4.2.1 Principles of organisation

- 4.2.2 Animal tissues, organs and organ systems
 - 4.2.2.1 The human digestive system
 - 4.2.2.2 The heart and blood vessels
 - 4.2.2.3 Blood
 - 4.2.2.4 Coronary heart disease: a non-communicable disease
 - 4.2.2.5 Health issues
 - 4.2.2.6 The effect of lifestyle on some non-communicable diseases
 - 4.2.2.7 Cancer

4.2.3 Plant tissues, organs and systems

- 4.2.3.1 Plant tissues
- 4.2.3.2 Plant organ system

4.3 Infection and response

4.3.1 Communicable diseases

- 4.3.1.1 Communicable (infectious) diseases
- 4.3.1.2 Viral diseases
- 4.3.1.3 Bacterial diseases
- 4.3.1.4 Fungal diseases
- 4.3.1.5 Protist diseases
- 4.3.1.6 Human defence systems
- 4.3.1.7 Vaccination
- 4.3.1.8 Antibiotics and painkillers
- 4.3.1.9 Discovery and the development of drugs

4.3.2 Monoclonal antibodies (biology only) (HT only)

- 4.3.2.1 Producing monoclonal antibodies
- 4.3.2.2 Uses of monoclonal antibodies

GCSE Biology (Separate) - Topic Content to Focus Revision On

- 4.3.3 Plant disease (biology only)
 - 4.3.3.1 Detection and identification of plant diseases
 - 4.3.3.2 Plant defence responses

4.4 Bioenergetics

- 4.4.1 Photosynthesis
 - 4.4.1.1 Photosynthetic reaction
 - 4.4.1.2 Rate of photosynthesis
 - 4.4.1.3 Uses of glucose from photosynthesis

4.4.2 Respiration

- 4.4.2.1 Aerobic and anaerobic respiration
- 4.4.2.2 Response to exercise
- 4.4.2.3 Metabolism

GCSE BIOLOGY (COMBINED "TRILOGY") - 1HR 15MIN EXAM

GCSE Biology (Combined "Trilogy") - Topic Content to Focus Revision On

The Combined Trilogy specification is available online at: AQA | Science | GCSE | GCSE Science

4.1 Cell biology

- 4.1.1 Cell structure
 - 4.1.1.1 Eukaryotes and prokaryotes
 - 4.1.1.2 Animal and plant cells
 - 4.1.1.3 Cell specialisation
 - 4.1.1.4 Cell differentiation
 - 4.1.1.5 Microscopy

4.1.2 Cell Division

- 4.1.2.1 Chromosomes
- 4.1.2.2 Mitosis and the cell cycle
- 4.2.1.3 Stem Cells

4.1.3 Transport in cells

- 4.1.3.1 Diffusion
- 4.1.3.2 Osmosis
- 4.1.3.3 Active transport

4.2 Organisation

- 4.2.1 Principles of organisation
- 4.2.2 Animal tissues, organs and organ systems
 - 4.2.2.1 The human digestive system
 - 4.2.2.2 The heart and blood vessels
 - 4.2.2.3 Blood
 - 4.2.2.4 Coronary heart disease: a non-communicable disease
 - 4.2.2.5 Health issues
 - 4.2.2.6 The effect of lifestyle on some non-communicable diseases
 - 4.2.2.7 Cancer

4.2.3 Plant tissues, organs and systems

- 4.2.3.1 Plant tissues
- 4.2.3.2 Plant organ system

4.3 Infection and response

GCSE Biology (Combined "Trilogy") - Topic Content to Focus Revision On

- 4.3.1 Communicable diseases
 - 4.3.1.1 Communicable (infectious) diseases
 - 4.3.1.2 Viral diseases
 - 4.3.1.3 Bacterial diseases
 - 4.3.1.4 Fungal diseases
 - 4.3.1.5 Protist diseases
 - 4.3.1.6 Human defence systems
 - 4.3.1.7 Vaccination
 - 4.3.1.8 Antibiotics and painkillers
 - 4.3.1.9 Discovery and development of drugs

4.4 Bioenergetics

- 4.4.1 Photosynthesis
 - 4.4.1.1 Photosynthetic reaction
 - 4.4.1.2 Rate of photosynthesis
 - 4.4.1.3 Uses of glucose from photosynthesis

4.4.2 Respiration

- 4.4.2.1 Aerobic and anaerobic respiration
- 4.4.2.2 Response to exercise
- 4.4.2.3 Metabolism

GCSE CHEMISTRY (SEPARATE) - 1HR 15MIN EXAM

GCSE Chemistry (Separate) - Topic Content to Focus Revision On

C4.1 Atomic structure and the periodic table

- 4.1.1 A simple model of the atom, symbols, relative atomic mass, electronic charge and isotopes
 - 4.1.1.1 Atoms, elements and compounds
 - 4.1.1.2 Mixtures
 - 4.1.1.3 The development of the model of the atom (common content with physics)
 - 4.1.1.4 Relative electrical charges of subatomic particles
 - 4.1.1.5 Size and mass of atoms
 - 4.1.1.6 Relative atomic mass
 - 4.1.1.7 Electronic structure

4.1.2 The periodic table

- 4.1.2.1 The periodic table
- 4.1.2.2 Development of the periodic table
- 4.1.2.3 Metals and non-metals
- 4.1.2.4 Group 0
- 4.1.2.5 Group 1
- 4.1.2.6 Group 7

4.1.3 Properties of transition metals (chemistry only)

- 4.1.3.1 Comparison with Group 1 elements
- 4.1.3.2 Typical properties

C4.2 Bonding, structure, and the properties of matter

- 4.2.1 Chemical bonds, ionic, covalent and metallic
 - 4.2.1.1 Chemical bonds
 - 4.2.1.2 Ionic bonding
 - 4.2.1.3 Ionic compounds
 - 4.2.1.4 Covalent bonding

GCSE Chemistry (Separate) - Topic Content to Focus Revision On

- 4.2.1.5 Metallic bonding
- 4.2.2 How bonding and structure are related to the properties of substances
 - 4.2.2.1 The three states of matter
 - 4.2.2.2 State symbols
 - 4.2.2.3 Properties of ionic compounds
 - 4.2.2.4 Properties of small molecules
 - 4.2.2.5 Polymers
 - 4.2.2.6 Giant covalent structures
 - 4.2.2.7 Properties of metals and alloys
 - 4.2.2.8 Metals as conductors

4.2.3 Structure and bonding of carbon

- 4.2.3.1 Diamond
- 4.2.3.2 Graphite
- 4.2.3.3 Graphene and fullerenes
- 4.2.4 Bulk and surface properties of matter including nanoparticles (chemistry only)
 - 4.2.4.1 Sizes of particles and their properties
 - 4.2.4.2 Uses of nanoparticles (chemistry only)

C4.3 Quantitative chemistry

- 4.3.1 Chemical measurements, conservation of mass and the quantitative interpretation of chemical changes
 - 4.3.1.1 Conservation of mass and balanced chemical equations
 - 4.3.1.2 Relative formula mass
 - 4.3.1.3 Mass changes when a reactant or product is a gas
 - 4.3.1.4 Chemical measurements
- 4.3.2 Use of amount of substance in relation to masses of pure substances
 - 4.3.2.1 Moles (HT only)
 - 4.3.2.2 Amounts of substances in equations (HT only)
 - 4.3.2.3 Using moles to balance equations (HT only)
 - 4.3.2.4 Limiting reactants (HT only)
 - 4.3.2.5 Concentration of solutions
- 4.3.3 Yield and atom economy of chemical reactions
 - 4.3.3.1 Percentage yield
 - 4.3.3.2 Atom economy
- 4.3.4 Using concentrations of solutions in mol/dm³ (chemistry only) (HT only)
- 4.3.5 Use of amount of substance in relation to volumes of gases (chemistry only) (HT only)

C4.4 Chemical changes

- 4.4.1 Reactivity of metals
 - 4.4.1.1 Metal oxides
 - 4.4.1.2 The reactivity series
 - 4.4.1.3 Extraction of metals and reduction
 - 4.4.1.4 Oxidation and reduction in terms of electrons (HT only)
- 4.4.2 Reactions of acids
 - 4.4.2.1 Reactions of acids with metals
 - 4.4.2.2 Neutralisation of acids and salt production
 - 4.4.2.3 Soluble salts
 - 4.4.2.4 The pH scale and neutralisation
 - 4.4.2.5 Titrations (chemistry only)

GCSE Chemistry (Separate) - Topic Content to Focus Revision On

4.4.2.6 Strong and weak acids (HT only)

4.4.3 Electrolysis

- 4.4.3.1 The process of electrolysis
- 4.4.3.2 Electrolysis of molten ionic compounds
- 4.4.3.3 Using electrolysis to extract metals
- 4.4.3.4 Electrolysis of aqueous solutions
- 4.4.3.5 Representation of reactions at electrodes as half equations (HT only)

C4.5 Energy changes

4.5.1 Exothermic and endothermic reactions

- 4.5.1.1 Energy transfer during exothermic and endothermic reactions
- 4.5.1.2 Reaction profiles
- 4.5.1.3 The energy change of reactions (HT only)

4.5.2 Chemical cells and fuel cells

- 4.5.2.1 Cells and batteries (chemistry only)
- 4.5.2.2 Fuel cells (chemistry only)

GCSE CHEMISTRY (COMBINED "TRILOGY") - 1HR 15MIN EXAM

GCSE Chemistry (Combined "Trilogy") - Topic Content to Focus Revision On

GCSE Trilogy Science Chemistry (HT only indicated in the specification by HT)

C4.1 Atomic structure and the periodic table

- 4.1.1 A simple model of the atom, symbols, relative atomic mass, electronic charge and isotopes
 - 4.1.1.1 Atoms, elements and compounds
 - 4.1.1.2 Mixtures
 - 4.1.1.3 The development of the model of the atom (common content with physics)
 - 4.1.1.4 Relative electrical charges of subatomic particles
 - 4.1.1.5 Size and mass of atoms
 - 4.1.1.6 Relative atomic mass
 - 4.1.1.7 Electronic structure

4.1.2 The periodic table

- 4.1.2.1 The periodic table
- 4.1.2.2 Development of the periodic table
- 4.1.2.3 Metals and non-metals
- 4.1.2.4 Group 0
- 4.1.2.5 Group 1
- 4.1.2.6 Group 7

C4.2 Bonding, structure, and the properties of matter

- 4.2.1 Chemical bonds, ionic, covalent and metallic
 - 4.2.1.1 Chemical bonds
 - 4.2.1.2 Ionic bonding
 - 4.2.1.3 Ionic compounds
 - 4.2.1.4 Covalent bonding
 - 4.2.1.5 Metallic bonding

4.2.2 How bonding and structure are related to the properties of substances

- 4.2.2.1 The three states of matter
- 4.2.2.2 State symbols
- 4.2.2.3 Properties of ionic compounds
- 4.2.2.4 Properties of small molecules

GCSE Chemistry (Combined "Trilogy") - Topic Content to Focus Revision On

- 4.2.2.5 Polymers
- 4.2.2.6 Giant covalent structures
- 4.2.2.7 Properties of metals and alloys
- 4.2.2.8 Metals as conductors

4.2.3 Structure and bonding of carbon

- 4.2.3.1 Diamond
- 4.2.3.2 Graphite
- 4.2.3.3 Graphene and fullerenes

C4.3 Quantitative chemistry

- 4.3.1 Chemical measurements, conservation of mass and the quantitative interpretation of chemical changes
 - 4.3.1.1 Conservation of mass and balanced chemical equations
 - 4.3.1.2 Relative formula mass
 - 4.3.1.3 Mass changes when a reactant or product is a gas
 - 4.3.1.4 Chemical measurements

4.3.2 Use of amount of substance in relation to masses of pure substances

- 4.3.2.1 Moles (HT only)
- 4.3.2.2 Amounts of substances in equations (HT only)
- 4.3.2.3 Using moles to balance equations (HT only)
- 4.3.2.4 Limiting reactants (HT only)
- 4.3.2.5 Concentration of solutions

C4.4 Chemical changes

4.4.1 Reactivity of metals

- 4.4.1.1 Metal oxides
- 4.4.1.2 The reactivity series
- 4.4.1.3 Extraction of metals and reduction
- 4.4.1.4 Oxidation and reduction in terms of electrons (HT only)

4.4.2 Reactions of acids

- 4.4.2.1 Reactions of acids with metals
- 4.4.2.2 Neutralisation of acids and salt production
- 4.4.2.3 Soluble salts
- 4.4.2.4 The pH scale and neutralisation
- 4.4.2.5 Strong and weak acids (HT only)

4.4.3 Electrolysis

- 4.4.3.1 The process of electrolysis
- 4.4.3.2 Electrolysis of molten ionic compounds
- 4.4.3.3 Using electrolysis to extract metals
- 4.4.3.4 Electrolysis of aqueous solutions
- 4.4.3.5 Representation of reactions at electrodes as half equations (HT only)

C4.5 Energy changes

4.5.1 Exothermic and endothermic reactions

- 4.5.1.1 Energy transfer during exothermic and endothermic reactions
- 4.5.1.2 Reaction profiles
- 4.5.1.3 The energy change of reactions (HT only)

GCSE PHYSICS (SEPARATE) - 1HR 15MIN EXAM

GCSE Physics (Separate) - Topic Content to Focus Revision On

The GCSE Physics Specification is available online at: AQA | Physics | GCSE | GCSE Physics

4.1 Energy

- 4.1.1 Energy changes in a system, and the ways energy is stored before and after such changes
 - 4.1.1.1 Energy stores and systems
 - 4.1.1.2 Changes in energy
 - 4.1.1.3 Energy changes in systems
 - 4.1.1.4 Power
- 4.1.2 Conservation and dissipation of energy
 - 4.1.2.1 Energy transfers in a system
 - 4.1.2.2 Efficiency
- 4.1.3 National and global energy resources

4.2 Electricity

- 4.2.1 Current, potential difference and resistance
 - 4.2.1.1 Standard circuit diagram symbols
 - 4.2.1.2 Electrical charge and current
 - 4.2.1.3 Current, resistance and potential difference
 - 4.2.1.4 Resistors
- 4.2.2 Series and parallel circuits
- 4.2.3 Domestic uses and safety
 - 4.2.3.1 Direct and alternating potential difference
 - 4.2.3.2 Mains electricity
- 4.2.4 Energy transfers
 - 4.2.4.1 Power
 - 4.2.4.2 Energy transfers in everyday appliances
 - 4.2.4.3 The National Grid
- 4.2.5 Static electricity (physics only)
 - 4.2.5.1 Static charge
 - 4.2.5.2 Electric fields

4.3 Particle model of matter

- 4.3.1 Changes of state and the particle model
 - 4.3.1.1 Density of materials
 - 4.3.1.2 Changes of state
- 4.3.2 Internal energy and energy transfers
 - 4.3.2.1 Internal energy
 - 4.3.2.2 Temperature changes in a system and specific heat capacity
 - 4.3.2.3 Changes of state and specific latent heat
- 4.3.3 Particle model and pressure
 - 4.3.3.1 Particle motion in gases
 - 4.3.3.2 Pressure in gases (physics only)
 - 4.3.3.3 Increasing the pressure of a gas (physics only) (HT only)

4.4 Atomic structure

- 4.4.1 Atoms and isotopes
 - 4.4.1.1 The structure of an atom
 - 4.4.1.2 Mass number, atomic number and isotopes

GCSE Physics (Separate) - Topic Content to Focus Revision On

- 4.4.1.3 The development of the model of the atom (common content with chemistry)
- 4.4.2 Atoms and nuclear radiation
 - 4.4.2.1 Radioactive decay and nuclear radiation
 - 4.4.2.2 Nuclear equations
 - 4.4.2.3 Half-lives and the random nature of radioactive decay
 - 4.4.2.4 Radioactive contamination
- 4.4.3 Hazards and uses of radioactive emissions and of background radiation (physics only)
 - 4.4.3.1 Background radiation
 - 4.4.3.2 Different half-lives of radioactive isotopes
 - 4.4.3.3 Uses of nuclear radiation
- 4.4.4 Nuclear fission and fusion (physics only)
 - 4.4.4.1 Nuclear fission
 - 4.4.4.2 Nuclear fusion

GCSE PHYSICS (COMBINED "TRILOGY") - 1HR 15MIN EXAM

GCSE Physics (Combined "Trilogy") - Topic Content to Focus Revision On

The Combined Trilogy specification is available online at: <u>AQA | Science | GCSE | GCSE Science</u> 4.1 Energy

- 4.1.1 Energy changes in a system, and the ways energy is stored before and after such changes
 - 4.1.1.1 Energy stores and systems
 - 4.1.1.2 Changes in energy
 - 4.1.1.3 Energy changes in systems
 - 4.1.1.4 Power
- 4.1.2 Conservation and dissipation of energy
 - 4.1.2.1 Energy transfers in a system
 - 4.1.2.2 Efficiency
- 4.1.3 National and global energy resources

4.2 Electricity

- 4.2.1 Current, potential difference and resistance
 - 4.2.1.1 Standard circuit diagram symbols
 - 4.2.1.2 Electrical charge and current
 - 4.2.1.3 Current, resistance and potential difference
 - 4.2.1.4 Resistors
- 4.2.2 Series and parallel circuits
- 4.2.3 Domestic uses and safety
 - 4.2.3.1 Direct and alternating potential difference
 - 4.2.3.2 Mains electricity
- 4.2.4 Energy transfers
 - 4.2.4.1 Power
 - 4.2.4.2 Energy transfers in everyday appliances
 - 4.2.4.3 The National Grid

4.3 Particle model of matter

- 4.3.1 Changes of state and the particle model
 - 4.3.1.1 Density of materials

GCSE Physics (Combined "Trilogy") - Topic Content to Focus Revision On

- 4.3.1.2 Changes of state
- 4.3.2 Internal energy and energy transfers
 - 4.3.2.1 Internal energy
 - 4.3.2.2 Temperature changes in a system and specific heat capacity
 - 4.3.2.3 Changes of state and specific latent heat

4.3.3 Particle model and pressure

• 4.3.3.1 Particle motion in gases

4.4 Atomic structure

4.4.1 Atoms and isotopes

- 4.4.1.1 The structure of an atom
- 4.4.1.2 Mass number, atomic number and isotopes
- 4.4.1.3 The development of the model of the atom (common content with chemistry)

4.4.2 Atoms and nuclear radiation

- 4.4.2.1 Radioactive decay and nuclear radiation
- 4.4.2.2 Nuclear equations
- 4.4.2.3 Half-lives and the random nature of radioactive decay
- 4.4.2.4 Radioactive contamination