

Biology



Biodiversity and the effect of human interaction on ecosystems - biodiversity, waste management, land use, deforestation, global warming, maintaining biodiversity.

Organisation of an ecosystem - levels or organisation, RP sampling techniques, how materials are cycled.

Adaptations, interdependence and competition - communities, abiotic factors, biotic factors, adaptations.

Genetics and evolution - evidence for evolution, fossils, extinction, resistant bacteria. Classification of living organisms

YEAR
11

ECOLOGY

FINAL
GCSE
EXAM

EXAM
REVISION

Photosynthesis - photosynthetic reaction, rate of photosynthesis, RP effect of light intensity on photosynthesis, plant uses of glucose.

Respiration - aerobic and anaerobic respiration, response exercise, metabolism.

Response - The human nervous system, RP human reaction times.

Hormonal coordination - endocrine system, control of blood glucose concentration, hormones in human reproduction, contraception and infertility, negative feedback.

Variation and evolution - selective breeding, genetic engineering.

HOMEOSTASIS
AND
RESPONSE

INHERITANCE,
VARIATION
AND
EVOLUTION

Reproduction - sexual and asexual, meiosis, DNA and the genome, genetic inheritance, inherited disorders, sex determination.

Cell Division - chromosomes, mitosis and the cell cycle, stem cells.

Cell structure - eukaryotes and prokaryotes, animal and plant cells, RP Microscopes, Cell specialisation, cell differentiation, microscopy.

KS4



ORGANISATION

Transport in Cells - diffusion, osmosis, RP Osmosis, active transport.

Inheritance - how information is passed on, variation - continuous and discontinuous, natural selection, extinction, importance of biodiversity.

INFECTION
AND
RESPONSE

Relationships in ecosystems - interdependence - food chains and webs, food production, effect of changes to the environment.

Ecosystems
and
Adaptations

Inheritance

YEAR
9

CELL
BIOLOGY

Working like a scientist - Researching, reporting and Communication of ideas

Working
Scientifically
2

Health
and
Lifestyle

DNA - chromosomes, development of DNA model.

Health - effect of drugs on the body

Respiration - aerobic and anaerobic respiration, equation, fermentation.

Biological
Processes

Nutrition and digestion - role of diffusion, healthy diet, deficiency disorders, structure and function of the digestive system, process of digestion.

Plant reproduction - structure and function of flowers, pollination, seed dispersal.

Reproduction in Humans - structure and function of the reproductive organs, menstrual cycle, fertilisation, gestation and birth.

YEAR
8



Reproduction

Body
Systems

Gas exchange and respiration - structure and function of the lungs, mechanisms of breathing, role of exercise.



Working
Scientifically
1

Health and Safety
in the Science Lab

YEAR
7

Cells

Working like a scientist - variables, COSHH symbols, equipment, handling data, investigation skills



KS3

Principles of Organisation - Animal tissues, organs and organ systems

Cells and organisation - microscopes, structure of cells, diffusion, multi-cellular organisation.

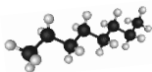




Chemistry



Carbon compounds-
Crude oil, alkanes and hydrocarbons, fractional distillation, cracking and alkenes



Rate of reaction-
Calculating rates, factors affecting rate of reaction, collision theory, activation energy and catalysts.



Using Earth's resources
Using resources, extracting metals and potable water

FINAL GCSE EXAMS

EXAM REVISION

Organic Chemistry

Rates of Reaction

YEAR 11

Energy changes-
Exothermic and endothermic reactions, reaction profiles, investigating temperature change

Reactions-
Reactivity of metals, reactivity series, extraction of metals, oxidation and reduction. Reactions of acids, pH, making salts, reactions of acids.



Quantitative Chemistry
Amount of substance in equations + using moles to balance equations

Electrolysis-
Process of electrolysis, using electrolysis to extract metals, electrolysis of aqueous solutions, reactions of electrodes as half equations.

Protecting resources-
Waste water treatment, sustainability, recycling and life cycle assessments.

Chemical changes

Chemical Calculations

Electrolysis

Earth's resources

Energy changes

Bonding-
Chemical bonds, ionic, covalent and metallic bonding

Structure-
States of matter, state symbols, properties of; ionic compounds, small molecules, metals, polymers, giant covalent structures

Model of the atom-
Symbols, relative atomic mass, isotopes, elements and compounds. Electronic structure and models of the atom

Human impact-
greenhouse gases, global climate change, carbon footprint



Earth's Atmosphere
Current atmosphere, early atmosphere, changes in oxygen and carbon dioxide levels

YEAR 10

Structure and Bonding

Periodic table
Development of periodic table, metals and non metals. Groups 0, 1 and 7.

Human impact-
Global warming, climate, damage to Earth's resources.

Chemical analysis

Analysis-
Purity of substances, formulations, chromatography



Earth's resources-
Extraction of metals using carbon, carbon recycling, recycling.

Metals and Acids

The Earth

Earth structure and Universe-
Composition and structure of the Earth

Working like a scientist –
Researching, reporting and Communication of ideas

KS4



Pure substances-
mixtures and dissolving, diffusion, separation techniques.

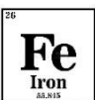
Separation Techniques

Reactions of Metals
Metals and Acids, oxygen, displacement reactions

Metals and Non-metals
Properties of materials

The Periodic Table

Working Scientifically 2



Types of reaction
Oxidation, decomposition, equations for reactions and reacting masses

The Periodic Table - physical and chemical periodicity, arrangement of the elements, predicting reactivity or properties.

Neutralisation
Making salts

Reactions

Acids and Alkalis

YEAR 8

Atoms, elements and compounds-
representation of chemicals, key ideas, chemical formula, what are reactions.

Particle model
particle model, gas pressure, changes of state

Exothermic and Endothermic
Energy and heat changes in reactions.

Acids, indicators and pH –
How do we know what an acid is and how it reacts.



Elements, atoms and Compounds

Particles

Working Scientifically 1

YEAR 7



Working like a scientist –
variables, COSHH symbols, equipment, handling data, investigation skills

Using Bunsen burners safely

Health and Safety in the Science Lab

KS3



Physics



Electromagnetism – The motor effect, Fleming's left-hand rule, Electric motors

Magnets – Permanent and induced magnetism, magnetic forces and fields - poles of a magnet, magnetic fields.

Electromagnetic waves - types and properties of electromagnetic waves, RP measuring IR, uses and applications of electromagnetic waves.

Waves in air, fluids and solids - transverse and longitudinal waves, properties of waves, RP ripple tank and standing waves in a string.



FINAL GCSE EXAM

EXAM REVISION

Magnetism and Electromagnetism

Waves

YEAR 11



Forces and braking - stopping distance, reaction time, factors affecting braking distance, momentum, conservation of momentum.

Circuits – circuit diagrams and symbols, charge, current, resistance and potential difference, RP Factors effecting resistance of a wire, resistors RP I-V characteristics. Series and parallel circuits.

Domestic uses and safety – direct and alternating potential difference, mains electricity.



Forces and their interactions - scalar and vector quantities, contact and non-contact forces, gravity, resultant forces.

Work – Work done and energy transfer. Forces and elasticity, RP Hookes law.

Newton's laws of motion – Newton's first law, Newton's second law, RP $F=ma$, Newton's third law.

Forces

Electricity

Atoms and nuclear radiation - radioactive decay and nuclear radiation, nuclear equations, half-lives and the random nature of radioactive decay, radioactive contamination.

Atoms and isotopes – the structure of an atom, mass number, atomic number and isotopes, the development of the model of the atom.

Internal energy and energy transfers - temperature changes in a system, specific heat capacity, changes of heat and specific latent heat.

Describing motion - distance and displacement, speed, velocity, the distance-time relationship, acceleration.

YEAR 10



Atomic Structure and Radioactivity

Particle Model of Matter



Energy transfers - power, energy transfers in everyday appliances, the National Grid.

Work and Heating and Cooling - Energy transfers Simple machines, heating and cooling, conduction, radiation, insulation, Energy and Power.

The particle model - density of material, RP density of regular and irregular objects, changes of state.

Conservation and dissipation of energy - efficiency. National and global energy resources.

Energy changes – energy stores and systems, energy transfers, energy changes in systems, RP specific heat capacity, power.

Energy Changes - types of energy transfers, law of conservation.

Describing motion speed, distance, time

Motion and Pressure

YEAR 9

Energy

KS4

Energy

Electricity – current in series and parallel, potential difference, resistance (of conductors and insulators)

Electrostatic charges – Forces due to static electricity, positive and negative charges from transfer of electrons and electric fields.

Pressure - in fluids, atmospheric pressure, floating and sinking, pressure calculations.

Electricity and Magnetism

Working Scientifically 2

YEAR 8

Electromagnetism - Forces between magnets, poles, lines of magnetic force, Earth's magnetic field, electromagnets.

Sound waves - frequency, reflection and absorption, speed of sound, vibrations and the ear, loudspeakers.

Wave properties - observed waves, water waves, transverse waves, reflection of waves, frequency.

Working like a scientist – Researching, reporting and Communication of ideas

Space Physics - Gravity and weight, Seasons, Day and Night, Moon phases What's in our universe?

Space

Sound

Light

Energy and Waves - pressure waves, ultrasound..

Light waves – transmission and reflection of light, ray diagrams, refraction, convex lenses and the eye, transfer of energy, colours.

Forces

Working Scientifically 1

Health and Safety in the Science Lab

YEAR 7

Forces - balanced and unbalanced, Contact and non contact force, Stretching and squashing

Working like a scientist – variables, COSHH symbols, equipment, handling data, investigation skills



KS3

