

Biology Paper 1

B1: Cells

Structure of eukaryotic and prokaryotic cells
Microscopes
Diffusion, Osmosis, Active Transport
Mitosis
Stem cells
Culturing microorganisms (triple only)

B2: Organisation

Digestive system
Respiratory system
Circulatory system
Coronary heart disease
Cancer
Enzymes
Food tests
Plant tissues, organs and systems

B3: Infection and response

Bacterial, Viral, Fungal and protist diseases
White blood cells, antibodies and antigens
Antibiotics
Vaccinations
Development of drugs
Monoclonal antibodies (triple only)
Plant diseases (triple only)

B4: Bioenergetics

Aerobic and Anaerobic respiration
Photosynthesis
Metabolism

Biology Paper 2

B5: Homeostasis

Nervous System
Brain
Eye
Controlling body temp
The endocrine system
Controlling blood glucose & diabetes
Kidneys
Menstrual cycle
Fertility
Plant hormones

B6: Inheritance

DNA
Protein synthesis
Meiosis
Genetic diagrams (punnet squares)
Mendel
Evolution
Selective breeding
Genetic engineering
Cloning
Fossils
Speciation
Classification

B7: Ecology

Competition
Biotic and abiotic factors
Adaptations
Food chains and webs
Quadrats and transects
Water cycle
Carbon cycle
Decay
Global warming
Trophic levels
Pyramids of biomass
Biotechnology

Chemistry Paper 1:

C1: Atomic structure

Structure of the atom
Electronic structure
Development of the atom
Arrangement of the periodic table
Group 1, 7 and 0 elements

C2: Structure and bonding

Atoms and ions
Ionic bonding
Covalent bonding
Metallic bonding
Polymers

C3: Quantitative chemistry

Relative atomic mass
Relative formula mass
Balancing equations
Conservation of mass
Moles (Higher only)

C4: Chemical changes

The reactivity series
Extraction of metals
Oxidation and reduction
Reactions of acids
Preparing a soluble salt
pH scale
Electrolysis

C5: Energy changes

Exothermic and endothermic reactions
Chemical cells and fuel cells (Higher only)

Chemistry Paper 2:

C6: Rates of reaction

Rates of reaction
Measuring rates
Analysis of rates graphs
Reversible reactions
Le Chatelier's principle

C7: Organic chemistry

Hydrocarbons
Fractional distillation
Cracking
Alkenes
Addition polymers and alcohols

C8: Chemical Analysis

Purity and formulations
Chromatography
Tests for gases
Tests for anions and cations
Spectroscopy

C9: Chemistry of the Atmosphere

Evolution of the atmosphere
Greenhouse gases and climate change
Carbon footprint
Air pollution

C10: Using Resources

Ceramics, composites and polymers
Properties of materials
Finite and renewable resources
Reuse and recycling
Life cycle assessments (LCA's)
Potable water
Waste water treatment
The Haber process
NPK fertilisers

Physics Paper 1:

P1: Energy

Energy stores and systems
Energy changes/transfers
Specific heat capacity
Power
Conservation of energy
Efficiency
National and global energy resources

P2: Electricity

Circuit diagrams
Charge, current, potential difference and resistance
Resistors
Series and parallel circuits
National grid
Static electricity (triple only)

P3: Particle model of matter

Density
Changes of state
Internal energy
Specific latent heat
Pressure

P4: Atomic structure

Atoms and isotopes
Structure of the atom
Development of the atom
Alpha, beta and gamma,
Nuclear equations
Half lives
Radioactive contamination
Fission and fusion (triple only)

Physics Paper 2:

P5: Forces

Contact and non-contact forces
Weight, mass and gravity
Resultant forces and work done
Elasticity and Springs
Moments
Fluid pressure
Upthrust and atmospheric pressure
Distance, speed and velocity
Acceleration
Distance-time and velocity-time graphs
Newton's 1st, 2nd and 3rd laws of motion
Stopping distance and reaction times
Momentum

P6: Waves

Transverse and longitudinal waves
Reflection
Electromagnetic waves and refraction
Light
Radio waves
EM waves - uses and dangers
Lenses
Ray diagrams
Magnification
Visible light
Infrared radiation and temperature
Black body radiation
Sound waves
Ultrasound

P7: Magnetism and electromagnetism

Permanent and induced magnets
Electromagnetism
The motor effect
Electric motors and loudspeakers
The generator effect
Generators and microphones
Transformers

P8 - Space Physics (Triple only)

Life cycle of stars
Solar system and orbits
Red shift and the big bang

