

Biology paper 1 revision list

- Cell structure
 - Animal cells
 - Plant cells
 - Eukaryotes and prokaryotes
 - Bacterial cells
- Investigating cells
 - The size of cells
 - Using microscopes to look at cells
 - Calculating magnification
- Cell division
 - Chromosomes
 - Mitosis and the cell cycle
 - Stem cells
 - Uses of stem cells
- Transport in and out of cells
 - Diffusion
 - Factors affecting diffusion
 - Osmosis
 - Active transport
 - Comparing processes
- Levels of organisation
 - Specialised cells
 - Tissues, organs and systems
- Digestion
 - Enzymes
 - Enzymes in digestion
 - Bile in digestion
- Blood and circulation
 - Blood
 - Blood vessels
 - The heart
 - Gaseous exchange
- Non communicable disease
 - Health and disease
 - Risk factors
 - Diseases of the heart
 - cancer
- Transport in plants
 - Plant tissues
 - Water transport
 - translocation

- Pathogens and disease
 - Pathogens and disease
 - Viral diseases
 - Bacterial diseases
 - Fungal diseases
 - Protist diseases
- Human defences against disease
 - Preventing entry to pathogens
 - The immune system
 - Vaccines
- Treating disease
 - Antibiotics
 - Developing new drugs
- Photosynthesis
 - Photosynthesis
 - Factors effecting photosynthesis
 - Converting glucose
- Respiration and exercise
 - The importance of respiration
 - Aerobic respiration
 - Anaerobic respiration
 - Exercise and respiration
 - Metabolism

Higher tier

- Inverse square law
- Multiple factors affecting photosynthesis
- Oxygen debt

Single science

- Culturing microorganisms
- Required practical investigating zones of inhibition
- Plant disease and deficiency
- Plant physical, chemical and mechanical defences

Single science higher

- Monoclonal antibodies
- Uses of monoclonal antibodies
- Plant disease detection and identification

Biology paper 2 revision list

- Homeostasis
 - The importance of homeostasis
 - Control systems
 - The nervous system
- Hormones and homeostasis
 - The endocrine system
 - Control of blood glucose
- Hormones and reproduction
 - Sex hormones
 - Controlling the menstrual cycle
 - Reducing fertility
- Sexual and asexual reproduction
 - Asexual reproduction
 - Sexual reproduction and meiosis
 - The genome
- Patterns of inheritance
 - Genetic inheritance
 - Genetic crosses
 - Inherited disorders
 - Sex determination
- Variation and evolution
 - Variation
 - Evolution
 - Evidence for evolution
- Manipulating genes
 - Selective breeding
 - Genetic engineering
- Classification
 - Principles of classification
 - Extinction
 - Evolutionary trees
- Ecosystems
 - Relationships between organisms
 - Adaptations
 - Transect lines
 - Quadrat sampling
- Cycles and feeding relationships
 - Carbon cycle
 - Water cycle
 - Cycling materials

- Disrupting ecosystems
 - Biodiversity
 - Pollution
 - Overexploitation
 - Conserving biodiversity

Higher tier

- Low glucose levels
- Negative feedback cycles
- Interactions of FSH, LH, oestrogen and progesterone
- Hormone levels in the menstrual cycle
- In vitro fertilisation IVF
- Adrenaline negative feedback cycle
- Thyroxine negative feedback cycle
- Process of genetic engineering using enzymes

Single science

- The brain
- The eye
- Eye accommodation
- Controlling body temperature
- Maintaining water levels in the body
- The kidneys and filtration
- Kidney dialysis
- Required practical – investigating light and gravity on germinating seeds
- Phototropism and geotropism
- Advantages and disadvantages of asexual and sexual reproduction
- DNA structure
- Cloning
- Darwin, Wallace and Lamarck's theories of evolution
- Speciation
- Gregor Mendel's experiments and genetics
- Decomposition and decay
- Required practical – the effect of temperature on the rate of decay using pH probes
- Trophic levels
- Pyramids of biomass

- Transfer of biomass
- Factors effecting food security
- Intensive farming
- Sustainable fisheries
- Role of biotechnology

Single science higher

- Investigating brain function and treating brain disease
- Increasing and decreasing body temperature
- Deamination
- Antidiuretic hormone negative feedback cycle
- Plant hormones
- Protein synthesis
- Mutations and enzyme structure
- Impact of environmental change

Chemistry paper 1 revision list

- Atom, elements, compounds and mixtures
 - Atoms, elements and compounds
 - Word equations
 - Balancing equations
 - Separating mixtures
- Atoms and the periodic table
 - Models of the atom
 - Subatomic particles
 - Isotopes and ions
 - Electron configuration
- The periodic table
 - The development of the periodic table
 - Group 0
 - Group 1 alkali metals
 - Group 7 halides
- States of matter
 - Three states of matter
 - Changing states
 - Identifying states
 - State symbols
- Ionic compounds
 - Chemical bonds
 - Ionic bonding
 - Ionic properties
- Covalent compounds
 - Covalent bonding
 - Small molecules
 - Giant covalent structures
 - Diamond and graphite
- Metals and special materials
 - Graphene
 - Fullerenes
 - Polymers
 - Metallic bonding
 - Properties of metals
 - Alloys

- Conservation of mass
 - The conservation of mass
 - Relative formula mass
 - Percentage abundance
 - Changes in mass
 - Concentration
- Reactivity of metals
 - Oxidation and reduction
 - The reactivity series
 - Displacement reactions
 - Extraction of metals
- The pH scale and salts
 - pH scale
 - neutralisation of acids
 - soluble salts from insoluble bases
- Electrolysis
 - Molten electrolysis
 - Aqueous electrolysis
 - Aluminium electrolysis
- Endothermic and exothermic reactions
 - Energy transfers
 - Reaction profiles

Higher tier

- Limitations of models
- Moles
- Amounts of substances
- Using moles to balance equations
- Using moles to find the limiting reactant
- Using moles to calculate concentration
- Oxidation and reduction in terms of electrons
- Redox equations
- Strong and weak acids
- Half equations
- Bond energies
- Making and breaking bonds

Single science

- Properties of transition metals
- Nanoparticles and coarse particles
- Uses of nanoparticles
- Percentage yield
- Atom economy
- Required practical – Titrations
- Chemical cells and fuel cells

Single science higher

- Calculating theoretical mass
- Explaining why specific reaction pathways are chosen
- Calculating concentration using moles, and volume (titration)
- Calculating mass from concentration (titration)
- Calculating the volume of gas from mass and relative formula mass
- Half equations for hydrogen fuel cells

Chemistry paper 2 revision list

- Rate of reaction
 - Calculating rate of reaction
 - Collision theory
 - Plotting reaction rates
- Reversible reactions
 - Catalysts
 - Reversible reactions
 - Closed systems
- Alkanes
 - Crude oils and hydrocarbons
 - Fractional distillation
 - Alkanes
 - Burning fuels
- Cracking hydrocarbons
 - Cracking hydrocarbons
 - Bromine water
- Chemical analysis
 - Pure and impure substances
 - Formulations
 - Chromatography
 - Gas tests
- The earths atmosphere
 - The early atmosphere
 - The atmosphere today
 - Increasing oxygen
 - Decreasing carbon dioxide
- Greenhouse gasses
 - Greenhouse gasses
 - The impact of human activities
 - Global climate change
 - Carbon footprints
- Earths resources
 - Sustainable development
 - Potable water
 - Waste water treatment
- Using resources
 - Life cycle assessments
 - Reducing the use of resources

Higher tier

- Calculating rate using a tangent on a graph
- Le Chatelier's principle
- Changing effects on equilibrium
- Changing temperature on equilibrium
- Changing pressure on equilibrium
- Changing concentration on equilibrium
- Alternative methods of metal extraction
- Bioleaching
- Phyto mining

Single science

- Alkenes and alcohols
- Addition polymerisation
- DNA as a monomer
- Flame tests
- Sulfate tests
- Halide tests
- Hydroxide tests
- Carbonate testing
- Required practical – testing for unknown chemicals
- Flame emission spectroscopy
- Corrosion and prevention
- Alloys as useful materials
- Ceramics, polymers, composites
- Thermosetting and thermosetting plastics
- The Haber process
- NPK fertilisers

Single science higher

- Condensation polymerisation
- Amino acid polymerisation
- Dynamic equilibrium and Le Chatelier's principle in the Haver process

Physics paper 1 revision list

- Energy stores and transfers
 - Energy stores and systems
 - Calculating energy changes
 - Specific heat capacity
 - Internal energy
- Energy transfers and resources
 - Energy transfers
 - National and global energy resources
- Electricity
 - Circuit symbols
 - Electric charge and current
 - Resistance and potential difference
- Circuits and resistance
 - Resistors
 - IV characteristics
 - Thermistors and LDRs
- Circuits and power
 - Series and parallel circuits
 - Power in circuits
- Domestic uses of electricity
 - Direct and alternating potential difference
 - Mains energy
 - Plugs
 - Dangers of mains electricity
 - Power and efficiency
- Electrical energy in devices
 - Energy transfers in appliances
 - The national grid
- Particle model of matter
 - States of matter
 - Density
 - Changes of state
 - Specific latent heat
 - Particle motion and pressure in gasses
- Atoms and isotopes
 - The structure of the atom
 - Isotopes
 - The plum pudding model
 - Rutherford, Geiger and Marsden

- Alpha particle scattering
- Nuclear radiation
 - Alpha, beta and gamma
 - Decay equations
 - Nuclear decay
 - Contamination and irradiation
- Half life
 - Half life
 - Nuclear equations

Higher tier

- Ways to increase efficiency
- Calculate half life as a ratio
- Forces acting on an isolated system

Single science

- Required practical – investigating thermal properties of insulators
- Static electricity
- Electric fields
- Pressure in gasses
- Hazards and used or radiation and background radiation
- Nuclear fission
- Nuclear fusion

Single science higher

- Work done, temperature, pressure and internal energy of gasses

Physics paper 2 revision list

- Forces introduction
 - Scalar and vector quantities
 - contact and non contact forces
 - gravity
 - resultant forces
- Forces in action
 - Work done and energy transfer
 - Forces and elasticity
- Forces and motion
 - Distance and displacement
 - Speed
 - Velocity
 - Newtons first law
 - Distance time graphs
- Forces and acceleration
 - Acceleration
 - Velocity time graphs
 - Newtons second law
- Terminal velocity, total stopping distance
 - Terminal velocity
 - Newtons 3rd law
 - Stopping distance
 - Reaction time
 - Factors effecting braking distance
- Wave and wave properties
 - Transverse and longitudinal waves
 - Properties of waves
 - Wave speed
- Electromagnetic waves
 - Electromagnetic waves
 - Refraction
 - Ray diagrams
- The electromagnetic spectrum
 - Uses and applications of electromagnetic waves
 - Hazards of electromagnetic waves
- Magnetism and electromagnetism
 - Magnetic poles and fields
 - Electromagnetism and solenoids

Higher tier

- Resolving resultant forces using vector diagrams
- Explain velocity
- Calculate distance using a velocity time graph
- Inertia
- Inertial mass
- Typical road vehicle decelerations
- Momentum
- Refraction and wavelength
- Wave front diagrams
- Radio wave transmission and absorption
- Explaining electromagnetic uses
- Fleming's left hand rule
- Electric motors
- Magnetic flux density

Single science

- Moments, levers and gears
- Pressure in fluids
- Atmospheric pressure and height
- Draw and interpret velocity time graphs
- Estimate distances for emergency stops in vehicles over a range of speeds
- How velocity, frequency and wavelength are affected travelling between mediums
- Required practical - Reflection
- Diffuse and spectral reflection
- Sound waves
- Concave and convex lenses
- Visible light and colour filters
- Black body radiation
- Perfect black bodies
- Absorption and emission at constant temperature
- Absorption and emission of earth
- How electromagnetic devices work
- The solar system and satellites
- Life cycle of a star
- Pressure and gravity equilibrium in stars
- Forming new elements in stars
- Orbit motions
- Redshift and wavelength
- Evidence for space expansion
- Big bang theory
- Dark mass and dark energy

Single science higher

- Pressure in a column of water
- Pressure in partially submerged objects
- Calculating momentum following a collision
- Calculating a change in momentum
- Calculating force as the rate of change of momentum
- Seismic waves
- Uses and exploration of sound waves
- How loudspeakers work
- Induced potential
- Uses of the generator effect
- How microphones work
- Step up and step down transformers
- Explaining velocity changes for planets
- Explaining orbit radius with speed changes

