

Curriculum Detail 2019-2020

Science

Topics covered at Key Stage 3:

Year 7

Physics - Speed, Gravity, voltage, resistance, current, energy costs, energy transfer, sound and light.

Chemistry - Particle model, separating mixtures, metals and non-metals, acids and alkalis, Earth structure and universe.

Biology - Movement, cells, interdependence, plant reproduction, variation and human reproduction.

Year 8

Physics - Contact forces, pressure, electromagnets, magnetism, work, heating and cooling, wave effects and wave properties.

Chemistry - Periodic table, elements, chemical energy, types of reactions, climate and Earth resources.

Biology - Breathing, Digestion, Respiration, Photosynthesis, evolution and inheritance.

Thinking Scientifically, Practical Skills

Topics covered at Key Stage 4 Year 9, 10 and 11: EXAM BOARD AQA

Combined Science (trilogy)

Biology – Cell biology, Organisation, Infection and response, Bioenergetics, Homeostasis and response. Inheritance, variation and evolution, Ecology.

Chemistry – Atoms, Bonding, Moles, Chemical Reactions & Energy Changes, Rates, Equilibrium, Organic Chemistry, Analysis & the Earth's Resources.

Physics – Conservation and dissipation of energy, Energy transfer by heating, Energy Resources, Electrical Circuits, Electricity in the Home, Molecules and Matter, Radioactivity, Forces, Motion, Pressure, Waves and Electromagnetic Waves, Light

Separate science (Biology/ Chemistry Physics)

All of the above content for Combined Science plus;

GCSE Biology – Extra topics within the above headings for example under homeostasis and response; the eye and the Brain

GCSE Chemistry – Extra topics within the above headings for example under chemical changes; titrations

GCSE Physics – Extra topics within the above headings also Electromagnetism and space.

Topics covered at Key Stage 5:

AQA Biology – Year1 AS Biology-Cell Biology, Structure of organic molecules, Protein synthesis, Cell division, Cell specialisation, Movement of substances, Body structures, Plant adaptations.

Year 2 A2 Biology- Populations, Ecosystems, Photosynthesis, Respiration, Sampling, Hardy-Weinberg, Genetic analysis

AQA Chemistry – Year 1 – Atomic structure, Amount of substance, Bonding, Energetics, Basic Kinetics, Equilibria, Redox Reactions, Group II, Group VII, Alkanes, Halogenoalkanes, Alcohols and Organic analysis.

Year 2 - Kinetics, Thermodynamics, Acids, Bases and Buffers, Periodicity, The Transition Metals, Reactions of Inorganic Compounds in Aqueous Solution, Nomenclature & isomerism, Carbonyl compounds, Aromatic chemistry, Amines, Polymerisation, Organic synthesis & analysis, Structure determination and Chromatography.

AQA Physics – Core content - Measurements and their errors, Particles and radiation, Waves, Mechanics and materials, Electricity, Further mechanics and thermal physics, Fields and their consequences, Nuclear physics.

Optional units – Astrophysics, Medical physics, Engineering physics, Turning points in physics, Electronics.

EDEXCEL BTEC Level 3 Applied Science - Unit 1 Principles and Applications of Science 1, Unit 2 Practical Scientific Procedures and Techniques, Unit 3 Science Investigation Skills, 1 Optional Unit.

Unit 4 Laboratory techniques and their applications, Unit 5 Principles and Applications of Science II, Unit 6 Investigative Project, 1 Optional Unit.