

SUBJECT OVERVIEW:

Science is made up of three different subjects: biology, chemistry and physics. All students will cover a broad spectrum of topics from each of these subject areas. Separate science provides a greater wealth of detail in each of the subject areas, and includes additional topics such as space physics, some of which are not included in combined science. The additional material ensures that students achieve three separate GCSEs, one in each discipline.

Combined science will result in two GCSE grades, which average the achievement across all three specialisms.

KEY STAGE 3 OVERVIEW:

YEAR 7 (SCHEMES OF WORK) AUTUMN:

- Science skills: Equipment, Hazards, Variables, Drawing tables and graphs, Writing conclusions
- Biology (Cells): Animal and plant cells, Observing cells, RP: Microscopes, Movement of substances, Specialised cells, Stem cells, Cells application
- Chemistry (Particles): States of matter, Changes of state RP: Stearic acid, Evaporation, Condensation, Diffusion, Particles application
- Physics (Forces): Introduction to forces, Squashing and stretching, RP – Hooke's Law, Drag and friction, Forces at a distance, Balanced and unbalanced, Forces Application

YEAR 7 (SCHEMES OF WORK) SPRING:

- Science skills: Planning an investigation, Completing a practical, evaluating an investigation
- Biology (Body systems): Levels of organisation, Respiratory system, RP – Breathing, Circulatory system, Skeleton, Movement, Body systems application
- Chemistry (Atoms): Structure of the atom, Electron configuration, Elements, Compounds, RP – Magnesium oxide, Mixtures, Atom application
- Physics (Space): The night sky, Timeline of discoveries, The solar system RP: Planet trends, The Earth, The Moon, Space application

YEAR 7 (SCHEMES OF WORK) SUMMER:

- Science skills: Drawing graphs, Interpreting graphs and data, Math skills in science, English skills in science
- Biology (Reproduction): Fertilisation, Development, Adolescence, The menstrual cycle RP: Flowers and pollination, Seed dispersal and germination, Reproduction application
- Chemistry (Acids and Alkalis): Acids and alkalis, pH scale RP: Indicators, Neutralisation, Making salts, Naming salts, Acids and alkalis application
- Physics (Waves) – Waves introduction, Sound waves, Light waves, Reflection RP: Refraction, EM spectrum, Waves application

YEAR 8 (SCHEMES OF WORK) AUTUMN:

Science skills: Equipment, Hazards, Variables, Drawing tables and graphs, Writing conclusions

Biology (Health): Nutrition, Food tests, Digestive system and enzymes

RP: Enzymes, Unhealthy lifestyle, Drugs, alcohol and smoking, Health application

Chemistry (Periodic Table): History of the periodic table, Metals and non-metals, Transition metals RP: Precipitates, Group 1, Group 0 and 7, Periodic table application

Physics (Motion): Speed RP: Investigating speed, Motion graphs, Pressure in gases, Pressure in liquids and solids, Turning forces and moments, Motion application

YEAR 8 (SCHEMES OF WORK) SPRING:

Science skills: Planning an investigation, Completing a practical, evaluating an investigation

Biology (Ecosystems): Plant structure and tissues, Photosynthesis RP: Starch testing, Respiration, Food chains and webs, Plant minerals, Ecosystems application

Chemistry (Separating Techniques): Mixtures, Solutions and solubility RP: Filtration, Evaporation, Distillation, Chromatography, Separating techniques application

Physics (Energy): Energy, Conduction, Convection

RP: Radiation, Energy resources, Energy and power, Energy application

YEAR 8 (SCHEMES OF WORK) SUMMER:

Science skills: Drawing graphs, Interpreting graphs and data,

Math skills in science, English skills in science

Biology (Genetics): RP: Variation, Inheritance, Selective breeding,

Evolution and natural selection, Extinction, Fossils, Genetics application

Chemistry (Metals): Properties of metals, Metals and oxygen

RP: Metals and acids, Metals and water, Displacement reactions,

Extracting metals, Metals application

Physics (Electricity): Electrostatics, Circuits and symbols

RP: Investigating current, Resistance, Magnets and magnetic fields,

Electromagnets, Electricity application

KEY STAGE 4 OVERVIEW:

YEAR 9 (SCHEMES OF WORK) Biology:

Cell structure and transport (RP – Culturing microorganisms, RP - Osmosis),
Animal tissues, Organs and systems (RP – Food tests, RP – Enzyme investigation)

YEAR 9 (SCHEMES OF WORK) Chemistry:

Atomic Structure, Structure and Bonding

YEAR 9 (SCHEMES OF WORK) Physics:

Atomic structure, Energy (RP – Specific heat capacity) (RP separates only –
Thermal insulation), Particles and gases (RP – Density)

YEAR 10 (SCHEMES OF WORK) Biology:

Health and disease, Bioenergetics (RP – Photosynthesis), Paper 1 mock exam

YEAR 10 (SCHEMES OF WORK) Chemistry:

Chemical changes, Energy, Quantitative chemistry, Paper 1 mock exam,
Rate of chemical change and (HT) equilibrium

YEAR 10 (SCHEMES OF WORK) Physics:

Electricity (RP – Resistance, RP – I - V characteristics), Forces and motion (RP –
Hooke's Law, RP - Acceleration), Paper 1 mock exam, Introduction to waves
(RP – Wave speed)

YEAR 11 (SCHEMES OF WORK) Biology:

Homeostasis and response (RP – Reaction time), Inheritance, Variation and
evolution, Ecology (RP - Sampling techniques), Biodiversity and human activity

YEAR 11 (SCHEMES OF WORK) Chemistry:

Organic chemistry, Qualitative chemistry, Chemistry of the atmosphere, Using resources

YEAR 11 (SCHEMES OF WORK) Physics:

Waves (RP – Infrared radiation) (RP separates only – Reflection and refraction),
Magnets and electromagnets, Space (separates only)