

YEAR 7 SCIENCE**YEAR 8 SCIENCE**

Year 7 and **Year 8** science topics use Exploring Science resources (2015) and the topic numbers given are found in the scheme.

TOPICS

- Safety
- 7A Cells, tissues, organs and systems
- 7E Mixtures and separation
- 7I Energy
- 7B Sexual reproduction in animals
- 7G The Particle Model
- 7J Current electricity
- 7C Muscles and bones
- 7L Sound
- 7D Ecosystems
- 7F Acids and alkalis
- 7H Atoms, elements and molecules
- 7K Forces
- REVISION
- Project work

TOPICS

- Safety
- 8A Food and nutrition
- 8F The Periodic Table
- 8K Energy transfers
- 8C Breathing and respiration
- 8E Combustion
- 8J Light
- 8B Plants and their reproduction
- 8H Rocks
- 8I Earth and space
- 8D Unicellular organisms
- 8G Metals and their uses
- 8I Fluids
- REVISION
- 9J Force fields and electromagnets
- 9K Waves and fields and project work

Year 9 GCSE Science		
Year 9 - Biology	Year 9 - Chemistry	Year 9 - Physics
Microscopes Core Practical - Microscopes Animal Cells Plant Cells Specialised Cells Bacteria Enzyme & Nutrition Enzyme Action Enzyme activity Core Practical - pH and Enzymes Transporting Substances Diffusion Transporting Substances Osmosis Active transport Core Practical - Osmosis in potato slices Cells and Control – Mitosis Growth in Animals Growth in plants Stem Cells The Nervous System Neurotransmissions & Speeds Neurones & Reflex arc Meiosis DNA Practical - DNA Extraction Alleles Inheritance Gene Mutation Variation <u>Separate Science</u> Testing foods Core Practical - testing foods The brain Spinal cord problems The Eye Sexual and asexual reproduction Protein synthesis Genetic variants Mendel Multiple and missing alleles	States of matter Mixtures Filtration and Crystallisation Paper Chromatography Distillation Core Practical - Investigating Inks Drinking Water Structure of an Atom Atomic and Mass Number Isotopes The periodic Table Atomic Number and periodic Table Electronic Configuration Ionic Bonding Ionic Lattices Properties of Ionic Compounds Covalent Bonding Molecular Compounds Allotropes of Carbon Properties of Metals Bonding Models	Vectors & Scalars Distance Time Graphs Acceleration Velocity Time Graphs Resultant Forces Newton's First Law Mass & Weight Newton's second Law Core Practical - Investigating acceleration Newton's Third Law Momentum Stopping Crash Hazards Energy Stores & Transfers Energy Efficiency Keeping Warm Practical Keeping Warm Stored Energies Non Renewable Resources Renewable Resources <u>Separate Science</u> Braking distance and energy

Year 10 GCSE Science		
Year 10 - Biology	Year 10 - Chemistry	Year 10 - Physics
Evidence for human evolution Darwin's theory Classification Breeds and varieties Genes in agriculture and medicine Health and disease Non-communicable diseases Cardiovascular disease Pathogens Spreading pathogens Physical and Chemical barriers Immune system Antibiotics Photosynthesis Factors affecting photosynthesis Core Practical - photosynthesis Absorbing water and mineral ions Transpiration and translocation Hormones Hormonal control of metabolic rate The Menstrual cycle Hormones and the menstrual cycle Control of blood glucose Type 2 Diabetes <u>Separate Science</u> Development of Darwin's theory Tissue Culture GM and agriculture Fertilizers and biological control Virus life cycle Plant defences Plant diseases Core practical – antibiotics Monoclonal antibodies Plant adaptations Plant hormones Uses of plant hormones Thermoregulation Osmoregulation The kidneys	Acids, Alkali and indicators Looking at acids Bases and salts Core practical - Preparing copper sulfate Alkalis and balancing equations Core Practical - Investigating neutralisation Alkali and neutralisation Reactions of acids with metals and carbonates Reactions of acids Solubility Masses and empirical formulae Empirical formula for magnesium oxide Conservation of mass Moles Electrolysis Core practical - Electrolysis of copper sulfate Products from electrolysis Reactivity Ores Oxidation and reduction Life cycle assessment and recycling Dynamic equilibrium <u>Separate Science</u> Transition metals Corrosion Electroplating Alloying Uses of metals and their alloys Yields Atom economy Concentrations Titrations Core practical – Titrations Molar volume of gases Fertilizers and the Haber process Factors affecting equilibrium Chemical cells and fuel cells	Describing waves Wave speed Core practical - Investigating waves Refraction Core practical - Investigating refraction Electromagnetic waves Electromagnetic spectrum Using the long wavelengths Using the short wave lengths EM radiation dangers Atomic model Inside atoms Electrons and orbits Background radiation Types of radiation Radioactive decay Half-life Dangers of radioactivity Work and power Objects affecting each other Vectors <u>Separate Science</u> Waves crossing boundaries Ears and hearing Ultrasound Infrasound Ray diagram Colour Lenses Radioactivity in medicine Nuclear energy Nuclear fusion Nuclear fission Solar system Gravity and orbits Life cycle of stars Red-shift Origin of the universe Rotational forces

Year 11 GCSE Science

Year 11 - Biology	Year 11 - Chemistry	Year 11 - Physics
<p>Efficient transport and exchange The circulatory system The heart Cellular respiration Core practical - Respiration rates Ecosystems Abiotic factors and communities Core practical - Quadrats and transects Biotic factors and communities Parasitism and mutualism Biodiversity and humans Preserving biodiversity The water cycle The Carbon cycle The Nitrogen cycle</p> <p><u>Separate Science</u> Energy transfer Assessing pollution Food security Rates of decomposition</p>	<p>Group 1 & Group 2 Halogen reactivity Rates of reaction Factors affecting rates of reaction Core practical rates of reaction Catalysts and activation energy Exothermic and endothermic reactions Energy changes in reactions Characteristics of fuels Hydrocarbons in crude oil and natural gas Fractional distillation of crude oil Homologous series - alkanes Complete and incomplete combustion Combustible fuels and pollution Breaking down hydrocarbons The early atmosphere The changing atmosphere The atmosphere today Climate change</p> <p><u>Separate Science</u> Alkanes and Alkenes The reaction of alkanes and alkenes Ethanol production Alcohols Core Practical - the combustion of alcohol Carboxylic acid Addition polymerisation Polymer properties and uses Condensation polymerisation Problems with polymers Flame tests and photometry Core practical - identifying ions Choosing materials Composite materials Nano particles</p>	<p>Electric circuits Current and potential difference Current charge and energy Resistance More about resistance Core practical - Investigating resistance Transferring energy Power Transferring energy by electricity Electrical safety Magnets and magnetic field Electromagnetism Magnetic forces Transformers Transformers and energy Particles and density Core practical - Investigating densities Energy and changes of state Energy calculations Core practical - Investigating water Gas temperature and pressure Bending and stretching Core Practical investigating springs Extension and energy transfers</p> <p><u>Separate Science</u> Electromagnetic induction Pressure in fluids Pressure and upthrust</p>