

DEPARTMENT:

Science KS4

Year	Term 1		Term 2		Term 3		Term 4		Term 5		Term 6	
9	Topics: Introduction to Science Practical Skills Triple Science: Big Issues in Science		Topics: Introduction to GCSE Experiments Triple Science: Writing Scientific reports		Topics: Chemistry Topic 2 States of matter From Term 3 onwards Triple Science will be working on the same topic as combined science in more depth and detail.		Topics: Physics Topic 4 Conservation of Energy From Term 3 onwards Triple Science will be working on the same topic as combined science in more depth and detail.		Topics: Biology Topic 1 Key Concepts in Biology From Term 3 onwards Triple Science will be working on the same topic as combined science in more depth and detail.		Topics: Chemistry Topic 1 Key Concepts in Chemistry The Atom and the Periodic Table. Chemistry Topic 6- Groups in the Periodic Table As well as working on the topics above, Triple science can also start to look and Bonding.	
	Knowledge & Skills: Scientific Variables, Risk Assessment, Graphing, Measuring in Science ,Analysing results. Recognising bias, debating skills, Developing research based opinions.	Why? These are fundamental skills that are needed to be confident to start GCSE science.	Knowledge & Skills Scientific Variables, Risk Assessment, Graphing, Measuring in Science ,Analysing results. Scientific writing skills	Why? These are fundamental skills that are needed to be confident to start GCSE science.	Knowledge & Skills Filtration and Crystallisation, Chromatography practical Distillation Theory	Why? States of matter and particle theory is needed to understand all other chemistry topics.	Knowledge & Skills Energy stores and Transfers , Energy Efficiency, Renewables vs Non-renewables	Why? Energy theory now is needed for ALL physics topics .	Knowledge & Skills Cells , Microscopes practical, Osmosis practical ,Enzymes practical	Why? These are the basic principles of Biology needed to move onto any other Biology topic	Knowledge & Skills The atom, Atomic number and Mass number , Isotopes , Elements , Electron Configuration	Why? The Atom, needed for all chemistry some Physics topics.
	Group Differentiation: Booklet containing step by step methods and extension to stretch some and allow more teacher support time for others.	Links to careers: Risk assessment, problem solving useful for all careers, not just scientific fields.	Group Differentiation: Booklet with step by step methods for experiments, extensions to stretch some, allowing teacher support time for others.	Links to careers: Risk assessment, problem solving useful for all careers, not just scientific fields.	Group Differentiation: Booklet with step by step methods for experiments, extensions to stretch some, allowing teacher support time for others.	Links to careers: Medicine and Pharmaceuticals, Food Science, Fuel science, Water industry.	Group Differentiation: Booklet with step by step methods for experiments, extensions to stretch some, allowing teacher support time for others.	Links to careers: Energy engineer, Energy consultant, Sustainability specialist, renewables industry.	Group Differentiation: Booklet with step by step methods for experiments, extensions to stretch some, allowing teacher support time for others.	Links to careers: Cell biology, Microbiology, Parasitology, Medical research, Forensics	Group Differentiation: Booklet with step by step methods for experiments, extensions to stretch some, allowing teacher support time for others.	Links to careers: Material Science, Analytical chemist, Chemical engineer
	Reading & Extended Writing: Writing an experimental method. Reading an writing science based articles	Numeracy: Calculating an average, graphing skills, analysing data, measuring	Reading & Extended Writing Writing an experimental method. Reading an writing science based articles	Numeracy: Calculating an average, graphing , analysing data, measuring	Reading & Extended Writing Extended open-response questions. Use of scientific vocabulary, terminology and definitions.	Numeracy: SI units, analysing data, graphing, RF values, Melting and Boiling points	Reading & Extended Writing Extended open-response questions. Use of scientific vocabulary, terminology and definitions.	Numeracy: SI units, analysing data, graphing, Energy calculations. Efficiency.	Reading & Extended Writing Extended open-response questions. Use of scientific vocabulary, terminology and definitions.	Numeracy: SI units, analysing data, graphing, Magnification, percentage change Reaction rates	Reading & Extended Writing Extended open-response questions. Use of scientific vocabulary, terminology and definitions.	Numeracy: SI units, analysing data, graphing , Balancing equations, Electron Configuration
SMSC: Healthy choices (Diet and Exercise), Communication with Braille and Sign language. Staying safe, emergency first aid. Pollution and Climate change. Deforestation, Recycling, Energy choices, Nuclear power, The ethics of Stem cell research, Science vs Religion, GM.		SMSC: Responsibility of self and others by staying safe during experiments.		SMSC: Responsibility of self and others by staying safe during experiments. Ethics of water waste, global water issues, Water in developing countries.		SMSC: Responsibility of self and others by staying safe during experiments. Ethics of energy choices and Sustainability.		SMSC: Responsibility of self and others by staying safe during experiments.		SMSC: Responsibility of self and others by staying safe during experiments.		
10	Topics: Biology Topic 2 Cells and Control. Physics Topic 2 Forces and Motion. From Term 3 onwards Triple Science will be working on the same topic as combined science in more depth and detail.		Topics: Chemistry Topic 1 Ionic Bonding, Covalent Bonding, Types of Substance and Calculations involving masses Biology Topic 5: Health, Disease and the Development of Medicine Triple Science Chemistry Topic 9 Qualitative analysis test for ions Chemistry Topic 5 Quantitative Analysis		Topics: Physics Topic 4 Waves Physics Topic 5 Light and the Electromagnetic Spectrum Biology Topic 4: Genetics Biology Topic 5: Natural Selection and Genetic Modification Triple Science Physics Topic 7 Astronomy		Topics: Chemistry Topic 3 Chemical Change Physics Topic 8 Energy and Forces doing work Physics Topic 9 Forces and their effects From Term 3 onwards Triple Science will be working on the same topic as combined science in more depth and detail.		Topics: Biology Topic 6 Plant structures and their functions Chemistry Topic 4 Extraction of metal and Equilibria Triple Science Topic 5 Transition Metals Alloys and Corrosion		Topics: Physics Topic 6 Radioactivity Biology Topic 9 Ecosystems and Material cycles From Term 3 onwards Triple Science will be working on the same topic as combined science in more depth and detail.	
	Knowledge & Skills Mitosis experiment, Growth in Plants , Growth in Animals. Newton's Laws, Acceleration practical, Road safety /crash hazards	Why? Mitosis is the next step up building on the structure of cells. Easing into Physics calculations	Knowledge & Skills Bonding and properties of substances Cardiovascular disease, Pathogens , immune system , Antibiotics	Why? This topic requires a lot of practice. Prior knowledge of cells needed for this topic.	Knowledge & Skills Refraction Practical, EM spectrum, EM Radiation and dangers. Evolution , Breeding and variety, Genes in agriculture, medicine	Why? Prior knowledge of energy time and practice is needed. Challenging concept, revisit	Knowledge & Skills Copper sulphate practical, Neutralisation practical, Reactions of acids with metals, carbonates.	Why? Prior knowledge of periodic table needed. Building on prior knowledge of energy and forces.	Knowledge & Skills Photosynthesis, Light intensity , Photosynthesis practical. Electrolysis practical Reactivity practical , Life cycle Assessment	Why? Looks at plant before moving onto ecology topic.	Knowledge & Skills Atomic models,Radiactive decay, Dangers of Radiation Quadrats and Transects Practical, Biodiversity and Ecosystem relationships	Why? Prior knowledge of the EM spectrum and atom needed Perfect time of year for wildlife
	Group Differentiation: Booklet with step by step methods for experiments, extensions to stretch some, allowing teacher support time for others.	Links to careers Cell Biology, Medical Research, Nursing, Medicine	Group Differentiation: Booklet with step by step methods for experiments, extensions to stretch some, allowing teacher support time for others.	Links to careers Material Science, Chemical engineer, Medicine, Parasitology, Health Care	Group Differentiation: Booklet with step by step methods for experiments, extensions to stretch some, allowing teacher support time for others.	Links to careers: Electronic engineering, Medical engineering Agriculture, Medical research	Group Differentiation: Booklet with step by step methods for experiments, extensions to stretch some, allowing teacher support time for others.	Links to careers: Material science chemical engineer. Energy engineer, Energy consultant,	Group Differentiation: Booklet with step by step methods for experiments, extensions to stretch some, allowing teacher support time for others.	Links to careers Ecologist, agriculture. Sustainability, waste and product management	Group Differentiation: Booklet with step by step methods for experiments, extensions to stretch some, allowing teacher support time for others.	Links to careers: Nuclear Physics, Nuclear Engineer Ecologist, Zoologist, Parasitologist,
	Reading & Extended Writing Extended open-response questions. Use of scientific vocabulary, terminology and definitions.	Numeracy: Percentile charts Vector scalars, Acceleration, Distance Velocity time graphs.	Reading & Extended Writing Extended open-response questions. Use of scientific vocabulary, terminology and definitions.	Numeracy: , Mass calculations, BMI calculations	Reading & Extended Writing Extended open-response questions. Use of scientific vocabulary, terminology and definitions.	Numeracy: Wave calculations, Inheritance probabilities	Reading & Extended Writing Extended open-response questions. Use of scientific vocabulary, terminology and definitions.	Numeracy: Balancing equations, Energy calculations	Reading & Extended Writing Extended open-response questions. Use of scientific vocabulary, terminology and definitions.	Numeracy: Transpiration rate	Reading & Extended Writing Extended open-response questions. Use of scientific vocabulary, terminology and definitions.	Numeracy: Half life calculations, Population calculations
SMSC: Responsibility of self and others by staying safe during experiments. Dealing with Cancer. Ethics of stem cell research. Responsibilities on the road.		SMSC: Responsibility of self and others by staying safe during experiments. Ethics of misuse of antibiotics and effect on others.		SMSC: Responsibility of self and others by staying safe during experiments. Living with Genetic diseases		SMSC: Responsibility of self and others by staying safe during experiments. Ethics of energy choices and Sustainability.		SMSC: Responsibility of self and others by staying safe during experiments. Sustainability, recycling and personal responsibility.		SMSC: Responsibility of self and others by staying safe during experiments. Ethics of radiation, its dangers and its uses.		
11	Topics: Chemistry Topic 7 Rates of Reaction and Energy Changes Biology Topic 7: Animal Coordination , Control and Homeostasis Triple Science Topic 5 Dynamic Equilibria		Topics: Physics Topic 10 Electricity and Circuits Chemistry Topic 8 Fuels and Earth Science Triple Science Physics Topic 11 Static Electricity Chemistry Topic 9 Hydrocarbons, Polymers, Alcohols and Carboxylic acid, Bulk surface properties of matter including Nanoparticles, Chemistry Topic 5 Chemical cells, Fuel cells		Topics: Biology Topic 8 Exchange and transport in animals Physics Topic 12 Magnetism and the Motor Effect Physics Topic 13 Electromagnetic Induction From Term 3 onwards Triple Science will be working on the same topic as combined science in more depth and detail.		Topics: Physics Topic 14 Particle Model Physics Topic 15 Forces and Matter EXAM REVISION LESSONS From Term 3 onwards Triple Science will be working on the same topic as combined science in more depth and detail.		Topics EXAM REVISION LESSONS TRIPLE SCIENCE REVISION LESSONS		Key Green lettering - Biology Red lettering - Chemistry Blue Lettering - Physics Purple lettering - Triple Science only Black lettering - All Sciences	
	Knowledge & Skills Rate of reaction practical, Catalysts , Exo and Endothermic reactions Hormones, Menstrual cycle Diabetes and blood sugar	Why? Revisits prior knowledge of the periodic table. Challenging concepts links to Cells and Control	Knowledge & Skills Resistance theory and practical , Power, Electrical safety Hydrocarbons, Combustion, The atmosphere, Climate Change	Why? Prior knowledge of bonding, atom + charge needed. Complex concepts, cover late in	Knowledge & Skills The Heart – Dissection, Respiration rates practical. Magnet and electromagnet investigations	Why? Builds on cells and scale up to whole body system Challenging concept, not needed for previous	Knowledge & Skills Investigating Densities practical Investigating water practical , Investigating Springs practical.	Why? Skills from calculations and knowledge from particle model, forces and link them together	Knowledge & Skills Continued practice of exam and revision technique	Why? To prepare for the final exam, find a better understanding of revision styles suit individuals.		
	Group Differentiation: Booklet with step by step methods for experiments, extensions to stretch some, allowing teacher support time for others.	Links to careers: Pharmaceuticals, Food industry, Nursing and Midwifery, Medicine, Physiology	Group Differentiation: Booklet with step by step methods for experiments, extensions to stretch some, allowing teacher support time for others.	Links to careers Electrician, Electrical engineer, Fuel Science, Geologist, Climatologist	Group Differentiation: Booklet with step by step methods for experiments, extensions to stretch some, allowing teacher support time for others.	Links to careers: Physiology, Physiotherapy, Zoology, Medicine, Electrical engineer, Engineer	Group Differentiation: Booklet with step by step methods for experiments, extensions to stretch some, allowing teacher support time for others.	Links to careers Particle science, Engineering, Construction	Group Differentiation: Booklet with step by step methods for experiments, extensions to stretch some, allowing teacher support time for others.	Links to careers: Science research, Teaching, Education, Psychologist		
	Reading & Extended Writing Extended open-response questions. Use of scientific vocabulary, terminology and definitions.	Numeracy: SI units, analysing data, graphing, Rate calculations, BMI calculations	Reading & Extended Writing Extended open-response questions. Use of scientific vocabulary, terminology and definitions.	Numeracy: Electricity calculations, Temperature change, Energy profiles, Rate calculations	Reading & Extended Writing Extended open-response questions. Use of scientific vocabulary, terminology and definitions.	Numeracy: SI units, analysing data, graphing	Reading & Extended Writing Extended open-response questions. Use of scientific vocabulary, terminology and definitions.	Numeracy: Density calculations, Hooke's law, Pressure calculations, Energy Calculations	Reading & Extended Writing Extended open-response questions. Use of scientific vocabulary, terminology and definitions.	Numeracy: SI units, analysing data, graphing		
SMSC: Responsibility of self and others by staying safe during experiments. Cultural and Religious beliefs affecting contraception, family planning and life choices.		SMSC: Responsibility of self and others by staying safe during experiments. Ethics of responsibilities for the planet and climate change.		SMSC: Responsibility of self and others by staying safe during experiments.		SMSC: Responsibility of self and others by staying safe during experiments.		SMSC: Responsibility of self and others by staying safe during experiments.				