Key Stage 3 Science			
Year 7			
All students are taught in mixed ability teaching groups recording their work on their iPads using their lab books for note taking in practical work.			
Term 1 content and skills	**Term 2 Content and skills**	**Term 3 Content and Skills**	**Extended Curriculum (trips/visits/afterschool activities)**
Content **Topic 1: Being a scientist:** Intro into the skills needed to be a scientist building upon primary understanding and experiences. **Skills** **Topic 1**: Observations, graph drawing, planning and evaluating practical work. Students then complete 3 further topics on rotation: **Topic 2: Core Biology**: • MRS GREN- Dead or alive • Flower dissection • Wind pollination and seed formation • Seed dispersal **Topic 3 Core Chemistry** *(National curriculum The particulate nature of science and atoms, elements and compounds and*	**Content** Students study 3 topics on rotation **Topic 5: Reproduction** *(National curriculum Reproduction)* building on knowledge of core biology from term 1 and links to PSHE in summer term: • What is reproduction (Links to T2) • Reproductive organs • Fertilisation • Pregnancy • Birth • Growing up **Topic 6: Simple chemical changes**-(*National curriculum Atoms, elements and compounds and chemical reactions)*	**Content** Students study 3 topics on rotation **Topic 8: Living world** *(National curriculum relationships in an ecosystem)* • Variation • Working scientifically task- investigating variation • Classification • Adaptation • Food chains and food webs • Energy through the ecosystem and bio accumulation (links to T10) **Topic 9: Separating mixtures** **(***National curriculum Pure and impure substances)*	**STEM Club** **Curriculum extension day:** Forensics murder mystery to build on key science skills of observation and practical knowledge learnt in the first half term. Students also have lessons on **environment and climate change**- 50 mins twice a year. Trips pre Covid 19 to University of Cambridge Chemistry department in March for Peter Worthers lecture.

physics- Matter- physical changes and particle model) • States of Matter • Changing states • The periodic table • Making models of atoms **Topic 4: Core Physics** *(National curriculum Motion and forces)* • Types of forces • Balanced and unbalanced forces • Air resistance • Up thrust **Key Skills** in these topics are based on improving scientific language and comprehension as well as building upon practical skills acquired in Topic 1 **Retrieval practice:** Students use Forms quizzes on their iPads.	building on knowledge of core chemistry from term 1: • Atoms, elements, compounds and mixtures (links to T3) • Chemical and physical changes • Oxidation reactions • Combustion • Gas tests • Decomposition reactions **Topic 7: Space** *(National curriculum Space physics)* building on knowledge of core physics from term 1: • Mass and weight (Links to T4) • Day and night • The Moon and eclipses • The solar system • The universe and stars **Key Skills** in these topics are based on improving scientific language and comprehension as well as building upon practical skills acquired in previous work. New skills introduced include labelling diagrams, looking at units and increasing use of Bunsen burners. **Retrieval practice:** Students use Forms quizzes on their iPads.	• Solutions, dissolving and mixtures (links to T6) • Filtration and evaporation (links T 10) • Working scientifically task- Salty water practical • Distillation • Chromatography **Topic 10: Heating and cooling** *(National curriculum energy transfers)* • Energy (Links to T8) • Cooling curves- (linksT3) • Conduction • Working scientifically task- what's the best insulator? • Convection • Radiation and evaporation **Key Skills-** in this term skills include use of separation techniques in chemistry, graph drawing, designing tables, planning and carrying out scientific investigations. **Retrieval practice:** Students use Forms quizzes on their iPads.	

They have revision lessons before the end of term test and RAG sheets to assess what they need to revise and how with links to BBC bitesize activities and Seneca learn. End of term test letters also go out to parents with suggested revision activities included in the letter **Assessment:** Being a scientist test- 45 marks to bench mark all students after the first topic. End of term test- 45 marks 15 from each core topic including question on practical skills	They have revision lessons before the end of term test and RAG sheets to assess what they need to revise and how with links to BBC bitesize activities and Seneca learn. End of term test letters also go out to parents with suggested revision activities included in the letter **Assessment**: End of term test: 45 marks 15 from each core topic including question on practical skills	They have revision lessons before the end of term test and RAG sheets to assess what they need to revise and how with links to BBC bitesize activities and Seneca learn. End of term test letters also go out to parents with suggested revision activities included in the letter **Assessment**: End of term test: 45 marks 15 from each core topic including question on practical skills	

Year 8			
All students are taught in mixed ability teaching groups recording their work on their iPads using their lab books for note taking in practical work.			
Content Students complete 3 topics on rotation **Topic 11 Food and digestion** *(National curriculum Nutrition and digestion)* • The digestive system (Links to T5- organ systems) • Modelling the digestive system • Enzymes • Working scientifically task- Enzymes • What do you need in a healthy human diet? (Links to PSHE/ Food Tech) • Food tests (Links to T6) **Topic 12 The Periodic Table** *(National curriculum The Periodic table)* • Introduction to the periodic table (Links to T3) • The structure of the atom • The development of the modern periodic table • Working scientifically task- development of the periodic table • The history of the atom (Links to T3) • The alkali metals	**Content** Students complete 3 topics on rotation **Topic 14: Health and Fitness** *(National curriculum The skeletal and muscular systems and health)* • The skeleton • Muscles and joints • Working scientifically- Fitness • Muscle size and strength • Drugs and their effects (Links to PSHE) • The effects of alcohol on the body (Links to PSHE) **Topic 15: Reactions of acids** *(National curriculum Chemical reactions)* • How to identify an acid and an alkali • Indicators • Neutralisation reactions • Making salts • MASH reaction • Working scientifically task Investigating salt crystals • Metal oxides	**Content** Students complete 3 topics on rotation **Topic 17: Breathing and respiration** *(National curriculum gas exchange systems and cellular respiration)* • Lungs and breathing • Aerobic respiration • Working scientifically task Breathing rate investigation • Asthma and smoking (Links to PSHE) • Respiration in microbes • Anaerobic respiration **Topic 18: Earth and Atmosphere** *(National curriculum Earth and atmosphere)* • The structure of the Earth (Links to geography) • The Rock Cycle • The Earth's Atmosphere (Links to climate change lessons and T6) • Global Warming • Fossil Fuels and the Carbon Cycle (Links to T6) • Managing resources and recycling	STEM Club Cambridge Launchpad- links to employers. Robot Club- Linking with Qual Com and ARM with advisors visiting school Salters chemistry competition- one team of 4 students selected to take part.

Topic 13 Sound and Waves *(National curriculum Waves- observed waves, sound waves and energy in waves)* • Water waves as transverse waves (Links to T10) • Sound waves as longitudinal waves • Sound in solids, liquids and gases • Sound waves in humans and music • Working scientifically Frequency investigation • Pressure waves **Skills:** Students work on modelling skills and strengths and weaknesses of models, Increase practical skills with use of equipment in different contexts. **Retrieval practice:** Students use Forms quizzes on their iPads. They have revision lessons before the end of term test and RAG sheets to assess what they need to revise and how with links to BBC bitesize activities and Seneca learn.	**Topic 16: Light** *(National curriculum Light waves)* • Light as a wave • Working scientifically task Reflection • Refraction • Colour • Lenses • Cameras and eyes (links to GCSE Biology) **Skills** Students are introduced to new equipment such as light boxes to use, increase use of maths skills for measuring angles. Beginning to construct equations in chemistry with more able completing balanced equations which they can then apply in the respiration and breathing topic next term. **Retrieval practice:** Students use Forms quizzes on their iPads. They have revision lessons before the end of term test and RAG sheets to assess what they need to revise and how with links to BBC bitesize activities and Seneca learn.	**Topic 19: Forces and Motion** *(National curriculum Motion and forces- describing motion)* • Forces (Links to T4) • Friction • Hooke's Law • Speed, Distance and time (links to Maths) • Moments • Pressure **Skills** Increased use of maths and looking at rates and how to calculate this. Interpretation of Speed time graphs, increased use of a range of different units. **Retrieval practice:** Students use Forms quizzes on their iPads. They have revision lessons before the end of term test and RAG sheets to assess what they need to revise and how with links to BBC bitesize activities and Seneca learn.	

End of term test letters also go out to parents with suggested revision activities included in the letter **Assessment:** End of term test: 60 Minutes- 20 marks for each topic including ones on practical skills	End of term test letters also go out to parents with suggested revision activities included in the letter **Assessment:** End of term test: 60 Minutes- 20 marks for each topic including ones on practical skills	End of term test letters also go out to parents with suggested revision activities included in the letter **Assessment:** End of term test: 60 Minutes- 20 marks for each topic including ones on practical skills	

Year 9			
All students are taught in mixed ability teaching groups recording their work on their iPads using their lab books for note taking in practical work.			
Content Students complete 4 topics on rotation **Topic 20 Evolve** *(National curriculum genetics and evolution, inheritance, chromosomes, DNA and genes)* • What causes variation (Links to T8) • Species and Natural selection • Evolution • How can we maintain variation? **Topic 21: Cells** *(National curriculum Cells and organisation)* • Cell structure (Links back to T2) • Observing Cells • Specialised Cells • Diffusion • Working scientifically task: Osmosis • Unicellular organisms **Topic 22: Materials** *(National curriculum materials)* • Metals, Polymers and ceramics • Making plastics • Extracting metals from ores (links to T18) • Composites	**Content** Students complete 3 topics on rotation **Topic 24: Photosynthesis** *(National curriculum photosynthesis, and relationships in an ecosystem)* • Key ideas and equation (Links to T15) • Adaptations • Testing for starch (Links to T11) • Atmosphere and food chains (Links to T8 and T18) **Topic 25: Reactivity** *(National curriculum materials)* • Reaction of metals with acids • Reactions of metals with oxygen and water (links to T15) • Displacement reactions	**Content** Students complete 3 topics on rotation **Topic 28 New for 2022 Biology – lesson to follow Immune system and pathogens TBC** **Topic 29 New for 2022 New Chem** *(National curriculum energetics)* • The structure of the atom (part 2) • Bonding and structure • Chemical changes • Quantitative chemistry	STEM Club Activities week- Activities offered to extend students understanding of science from Science and Art activities, Forensics and Rocket science

• Working scientifically task Rusting and corrosion • Nano materials • Plastics in the ocean (Links to T18) **Topic 23: Energy** *(National curriculum Energy- calculation of fuel uses and costs in the domestic context)* • Energy- food and fuels (links to T11) • Conservation of energy • Energy resources • Working scientifically task Power **Skills:** Students work understanding ethics, learning how to use a microscope in readiness for GCSE,	• Thermal decomposition (Links to T6) • Energy changes Exo and endo thermic reactions (Links to T10 and 22) • Rates of reactions **Topic 26: Pressure** *(National curriculum Pressure in fluids and balanced forces)* • Pressure in solids (Links to T3) • Pressure in gases • Working scientifically Pressure in liquids • Moments (links to Topic 19) • Simple machines **Topic 27: Electricity** *(National curriculum Electricity and electromagnetism- current electricity, static electricity)* • Charging up- static electricity (Links to T3 and T12) • Electric current • Potential difference • Series and parallel • Working scientifically series and parallel circuits (models) • Resistance **Skills:** Students apply knowledge from previous topics and build upon ideas learnt previously. Scientifically vocab and understanding of key	**Topic 30: Magnetism** *(National curriculum Electricity and electromagnetism- magnetism)* • Magnets and magnetic fields (Links to T27) • The Earth magnetic field • Working scientifically task Electromagnets • Use of electromagnetism **Skills:** Students Review all their skills taught at KS3 and bring them	

Increased use of algebra and equations in calculations. **Retrieval practice:** Students use Forms quizzes on their iPads. They have revision lessons before the end of term test and RAG sheets to assess what they need to revise and how with links to BBC bitesize activities and Seneca learn. **Assessment**: End of term test: 75 mins questions on both theory and practical skills	words from use of extended questions, more use of symbol equations in Chem and physics. **Retrieval practice:** Students use Forms quizzes on their iPads. They have revision lessons before the end of term test and RAG sheets to assess what they need to revise and how with links to BBC bitesize activities and Seneca learn. **Assessment**: End of term test: 75 mins questions on both theory and practical skills	together recalling key words with a greater understanding of scientific concepts. Practical skills and understanding of variables clearly embedded in their learning as well as analytical skills such as graph drawing and evaluating data. **Retrieval practice:** Students use Forms quizzes on their iPads. They have revision lessons before the end of KS3 exam and RAG sheets to assess what they need to revise and how with links to BBC bitesize activities and Seneca learn. **Assessment:** End of KS3 Exam- students are assessed on all KS3 knowledge with parts selected and deemed essential knowledge in readiness for KS4. Questions include ones on practical skills.	