Key Stage 3 Science			
Year 7 Pupils who started Year 7 in **2022 onwards**			
All students are taught in mixed attainment teaching groups, recording their work on iPads and using 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:** Observations, graph drawing, planning and evaluating practical work. Students then study topics 2-4 on rotation	**Content** Students study 3 topics on rotation	**Content** Students study 3 topics on rotation	**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. **External STEM speakers and events** Students also have lessons on **environment and climate change-** 50 mins twice a year.
Y7 B1: Core Biology (T2): • What is Biology? • Living/non-living organisms • Food chains and webs. • Interdependence. • Pyramids of number and biomass. • Habitats • Abiotic and biotic factors • Working scientifically task- graphs - habitats	**Y7 B2: Cells (T5)** Building on knowledge of core biology from term 1: • Microscopes • Cell structure • Unicellular organisms • Specialised cells and Adaptations • Diffusion • Cells, Tissues and Organs • Working scientifically task Data Analysis – investigating diffusion	**Y7 B3: Reproduction (T8)** *(National curriculum Reproduction)* building on knowledge of core biology from term 1 and links to PSHE in summer term: • Life Cycles • Puberty and growth • Human Reproduction systems and fertilisation • Menstrual cycle • Pregnancy and birth • Plant Reproduction • Seed formation and dispersal mechanisms	

Y7 C1: Core Chemistry (T3) *(National curriculum The particulate nature of science and atoms, elements and compounds and physics- Matter- physical changes and particle model)* • States of Matter • Working scientifically task- Making models of atoms • Classifying and combining materials • What is a substance • The particle model WS Task • Changes of state	**Y7 C2: Separating mixtures (T6)** *(National curriculum Pure and impure substances)* Building on knowledge of core chemistry from term 1: • Solutions, dissolving and mixtures (links to T23) • Filtration • Working scientifically task- risk and planning - filtration • Distillation and evaporation • Solubility • Chromatography	**Y7 C3: Elements and Compounds (T9)** *(National curriculum Pure and impure substances)* • Elements, Mixtures and • Compounds Symbols and Formula • The Halogens • Working scientifically task- graph skills – Halogens • Polymers (links to Y7 C1(T3)) **C3 part 2: Earth and Atmosphere (T10)** • Rock classification • Rock formation • Atmosphere	
Y7 P1: Core Physics (T4) *(National curriculum Motion and forces)* • Types of forces • Balanced and unbalanced forces • Force interactions and resultant force • Friction and air resistance • Weight and Upthrust	**Y7 P2: Energy (T7)** *(National curriculum energy transfers)* • Energy Stores • Temperature and Thermal Conduction • Infrared Radiation • Greenhouse Effect • Climate change and Renewable Energy • Green homes	**Y7 P3: Space (T11)** *(National curriculum Space)* • The Earth (links to T10) • The Sun • The Seasons • The Moon • The Solar System • Exploring the Universe	
Key Skills in these topics are based on improving scientific language and comprehension as well as building upon practical skills acquired in Topic 1	**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	**Key Skills-** in this term skills include, graph drawing, designing tables, planning and carrying out scientific investigations.	

	introduced include labelling diagrams, use of separation techniques in chemistry, looking at units and increasing use of Bunsen burners.		
Retrieval practice: Students complete Microsoft Forms quizzes on their iPads as a starter and plenary. 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 and pages from the revision guide. 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 benchmark all students after the first topic. End of term test- 45 marks, 15 from each of the Physics, Chemistry and Biology topics, including questions on practical skills	**Retrieval practice:** Students complete Microsoft Forms quizzes on their iPads as a starter and plenary. 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 of the Physics, Chemistry and Biology topics, including questions on practical skills	**Retrieval practice:** Students complete Microsoft Forms quizzes on their iPads as a starter and plenary. 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 of the Physics, Chemistry and Biology topics, including questions on practical skills	

Year 8			
All students are taught in mixed attainment 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	**Content** Students complete 3 topics on rotation	**Content** Students complete 3 topics on rotation	**Extended Curriculum (trips/visits/afterschool activities)**
Y8 B1: Inheritance and the genome (T15) • Sexual and asexual reproduction (Links to Y7 B2 (T5) and Y7 B3 (T8)). • Plant Reproduction (Links to Y7 B2 (T5) and Y7 B3 (T8)). • Seed formation and dispersal mechanisms • Heredity and genetic info (Links to Y7 B2 (T5)) • Structure and function of genome, DNA, chromosomes	**Y8 B2: Cells to organs (T12)** • Digestive system and simple enzymes • Digestive system model • Lungs and breathing (Links to Y7 B2 (T5)) • Circulation • The skeleton and joints • Muscles, heart and blood	**Y8 B3: Variation and classification (T18)** • Species, continuous and discontinuous variation • Genetic and environmental variation • Fossils and changes over time (Links to Y7 C4 (T10)) • Identification and classification at cellular level (link to Y8 B1 (T12)).	**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.
Y8 C1: Simple chemical changes (T13) - (*National curriculum Atoms, elements and compounds and chemical reactions)* building on knowledge of core chemistry from year 7: • Conservation of mass • Chemical and physical changes (Link to Y7 C1 (T3)) • Oxidation reactions • Combustion • Displacement reactions • Decomposition reactions	**Y8 C2 Energy and Reactivity of acids (T16) (***National curriculum Chemical reactions)* • Exothermic and endothermic reactions • Reactivity series and oxidation (Links to Y8 C1 (T13) and 25) • Extracting metals from their ores • Energy changes in changes of state • The water cycle • Rates of reactions	**Y8 C3: Acids and Alkali (T19)** *(National curriculum Earth and atmosphere)* • The pH scale • Making an indicator • Neutralisation reactions • Reactions of acids with metal carbonates and metal oxides • Reactions of acids with metals (Links to Y8 C2 (T16)) • Acid rain	

Y8 P1: Forces and Motion (T14) *(National curriculum Motion and forces- describing motion,* Links to Y7 P1 (T4)) • Forces • Balanced and unbalanced forces • Friction • Speed, Distance and time (links to Maths) • Velocity and Acceleration • Distance-time graphs and speed-time graphs • Terminal Velocity	**Y8 P2: Sound Waves (T17)** *(National curriculum Waves- observed waves, sound waves and energy in waves)* • Sound waves as longitudinal waves • Sound in solids, liquids and gases • Sound waves in humans and music • Loudness and Pitch • Detecting Sound • Echo and Ultrasound • Speed of Sound • Working scientifically Frequency investigation	**Y8 P3: Electricity (T20)** *(National curriculum Electricity and electromagnetism- current electricity, static electricity)* • Charging up- static electricity • Electric current • Potential difference • Resistance • Series and parallel • Working scientifically series and parallel circuits (models)	
Skills: Students work on modelling skills and strengths and weaknesses of models, Increase practical skills with use of equipment in different contexts.	**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.	**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	**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	**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	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	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	

Year 9			
All students are taught in mixed attainment 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	**Content** Students complete 3 topics on rotation	**Content** Students complete 3 topics on rotation	**Extended Curriculum (trips/visits/afterschool activities)**
Y9 B1: Cellular Biochemistry (T21) • Photosynthesis equation, • Producers, food chains and limiting factor. Link to T5 • Leaf adaptations • Aerobic respiration (link to Y7 B1 (T2) and Y7 B2 (T5)) • Anaerobic respiration in mammals and microbes • Respiration and exercise	**Y9 B2: Health and disease (T24)** • Physical and mental health, disease • Healthy diet and food groups. • Enzymes, energy calculations and the consequences of energy imbalance • Lifestyle factors and their effects on health (diet, exercise, smoking, alcohol, drugs) • Infectious diseases and how they spread • Immunity, vaccinations and antibiotics	**Y9 B3: Adaptation and Evolution (T27)** • Adaptation • Competition (intra and interspecific) • Variation, selective breeding and natural selection • Evolution • Competition	**STEM Club** **Activities week**- Activities offered to extend students understanding of science from Science and Art activities, Forensics and Rocket science
Y9 C1: The Periodic Table (T22) *(National curriculum The Periodic table)* • The structure of the periodic table (Links to Y7 C1(T3)) • The history of the periodic table • The structure of an atom • The periodic table and reactions: Group 1	**Y9 C2: The chemistry of the earth and atmosphere part B (T25)** • Chemical and physical weathering and erosion • The rock cycle (Link to Y7 C4 (T10)) • Fossil fuels (Link to Y8 P2 (T7)) • Earth resources • The carbon cycle • Global warming	**Y9 C3: Foundations in chemistry (T28)** *(National curriculum materials)* • The structure of the atom (links to Y9 C1(T22)) • Bonding and structure • Chemical change (links to Y8 C1 (T13)) • Reactions of acids (Links to Y8C3(T19)) • Quantitative Chemistry	

• The periodic table and reactions: Group 7 • Reactions of metals and non-metals			
Y9 P1: Pressure & Moments (T23) *(National curriculum Pressure in fluids and balanced forces)* • Mass and Weight • Pressure in solids (Links to Y7 C1 (T3)) and in gases • Working scientifically task Pressure in liquids • Moments (links to Y8 P1 (T14))	**Y9 P2: Magnetism and Electromagnetism (T26)** *(National curriculum Electricity and electromagnetism- magnetism)* *Building on Y8 T3 (T20):* • Magnets and magnetic fields (Links to T27) • The Earth magnetic field (links to Y7 C4 (T10) and Y7 P3 (T11)) • Working scientifically task Electromagnets • Use of electromagnetism- The Motor Effect	**Y9 P3: Light Waves (T29)** *(National curriculum Light waves)* • Light as a wave (Links to Y8 P1 (T14)) • Working scientifically task Reflection • Refraction • Colour • Lenses • Cameras and eyes (links to GCSE Biology) • Water waves	
Skills: Students work understanding ethics, learning how to use a microscope in readiness for GCSE, Increased use of algebra and equations in calculations. **Assessment**: End of term test: 75 mins questions on both theory and practical skills	**Skills:** Students apply knowledge from previous topics and build upon ideas learnt previously. Scientifically vocab and understanding of key words from use of extended questions, more use of symbol equations in Chem and physics. **Assessment**: End of term test: 75 mins questions on both theory and practical skills	**Skills:** Students Review all their skills taught at KS3 and bring them 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. **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.	