Subject: Science	Components		Composite	Mission statement
	What new knowledge do we introduce?		What do students *do* with this knowledge?	By the end of year 11 a Sybil Andrews English student will...
	Year 10	Year 11		
Autumn	Biology Disease its prevention and cure. Photosynthesis and respiration. Chemistry Chemical changes and chemical reactions. Physics Electrical circuits electricity in the home and radioactivity.	Biology Nervous system and hormonal control. Chemistry Our atmosphere and the earths atmosphere. Physics Forces, motion and forces and motion.	Students will be able to use their knowledge to: • 'Work scientifically' through investigating, observing, experimenting or testing out ideas and thinking about them. This will involve talking about, reading and writing about science plus the actual doing, as well as representing science in its many forms both mathematically and visually through models. Working scientifically is the sum of all the activities that scientists do. • Students should be able to recall and use their acquired science knowledge to answer questions that link different areas of science to develop coherent arguments and explanations.	Understand that science is a set of ideas about the material world. We separate science into the three disciplines of Biology, Chemistry and Physics. Big ideas of biology: • Life is organised on a cellular basis • Organisms compete with, or depend on, other organisms for the same basic materials and energy that cycle throughout ecosystems • All organisms use the same genetic material that is passed down from one generation to another • The diversity of organisms, living and extinct, is the result of evolution by natural selection Big ideas of chemistry: • All substances in the Universe are made from atoms • The physical properties of a substance depend on how particles are arranged and joined together • Chemists use equations and formulae to represent how
Spring	Biology Adaptation, competition and organising an ecosystem, biodiversity. Chemistry Electrolysis and energy changes in reactions. Physics Radioactivity and wave properties.	Biology Reproduction, revision and past paper practise. Chemistry Revision and past paper practise Physics Revision and past paper practise		

Summer	Biology Variation and evolution, and genetics. Chemistry Rates and equilibrium, crude oils and fuels with organic chemistry to include work on polymers. Physics Electromagnetic spectrum to include light and electro magnetism	Biology Revision and past paper practise. Chemistry Revision and past paper practise Physics Revision and past paper practise		atoms and electrons are exchanged during chemical reactions Chemical reactions occur when bonds are broken and new bonds are made Big ideas of physics Changing the speed or direction of an object requires an unbalanced force The total amount of energy in the Universe is always the same but can be transferred from one energy store to another Charged particles create electric fields, and when these particles move they produce magnetic fields
Rationale for these specific components and composite outcomes:	Topics build upon each other in terms of depth and skills required over time. By the end Year 10 all students will have completed the Paper 1 Trilogy content for Biology, Chemistry and Physics. This allows us to assess progress and make course and tier decisions where appropriate. The assessment sat will be the same as previous cohorts of Y10 which will allow us to make accurate predictions and estimates of likely flightpaths.	The intention is that students will have covered all the required content for the GCSE Trilogy course by the end of Term 2. Specific revision activities are selected based upon the needs of each student across all three disciplines.	There are a minimum of 21 required practical's that are mandatory in the GCSE Science courses. At least 15% of the final GCSE exam papers will be based upon these practical's and how to 'work scientifically'.	
How is challenge embedded into the KS4 curriculum? There are two potential pathways for students to progress through GCSE Science: Combined Science - worth two GCSE (graded from 11 to 99); Separate Sciences - Biology, Chemistry and Physics examined as individual subjects (each graded 1-9) Each pathway can also be sat at Foundation Tier, FT (Grades 1-5) or Higher Tier, HT (Grades 4-9). The decision as to which course students follow is done on an individual basis considering what is best for each student. The Separate Science HT pathway offers the most challenging alternative for our students. For a			How does the KS4 curriculum above build on prior knowledge from KS3 and adequately prepare the student for KS5? The KS3 curriculum is built specifically with KS4 in mind. There is significant cross-over in terms of concepts, key terms and skills. There is a consistency in exam strategy, command words and required practicals. Much of the KS3 content and skills have been informed by areas of strength and weakness identified during the KS4 course by earlier year	

student to be given the option to follow this route they must consistently demonstrate that they can cope with the extra demands of more subject content, and longer examinations with little extra time being provided in school.	groups. Both GCSE pathways offered provide a solid basis for any of the Level 3 science qualifications offered KS5.