

Curriculum Map						
Year 11 Combined						
Half term	Unit title with hyperlink to scheme of work	Unit summary	Skills & content covered	Skills & content revisited	Summary of formative marking, feedback and student response	Summative assessment schedule, including assessment criteria
Autumn Half-term 1	B6 Inheritance, Variation and Evolution	In this section we will discover how the number of chromosomes are halved during meiosis and then combined with new genes from the sexual partner to produce unique offspring. Gene mutations occur continuously and on rare occasions can affect the functioning of the animal or plant. These mutations may be damaging and lead to a number of genetic disorders or death. Very rarely a new mutation can be beneficial and consequently, lead to increased fitness in the individual. Variation generated by mutations and sexual reproduction is the basis for natural selection; this is how species evolve. An understanding of these processes has allowed scientists to intervene through selective breeding to produce livestock with favoured characteristics. Once new varieties of plants or animals have been produced it is possible to clone individuals to produce larger numbers of identical individuals all carrying the favourable characteristic. Scientists have now discovered how to take genes from one species and introduce them in to the genome of another by a process called genetic engineering. In spite of the huge potential benefits that this technology can offer, genetic modification still remains highly controversial.	1. Sexual and asexual reproduction 2. Meiosis 3. Advantages of sexual and asexual reproduction (triple only) 4. DNA and the genome 5. DNA structure (triple only) 6. Genetic inheritance 7. Inherited disorders 8. Sex determination 9. Variation 10. Evolution 11. Theory of evolution (triple only) 12. Speciation (triple only) 13. Evidence for evolution 14. Understanding of genetics (triple only) 15. Selective breeding 16. Genetic engineering 17. Cloning (triple only) 18. Bacterial resistance 19. Classification	There is variation between individuals of the same species. Some variation is inherited, some is caused by the environment and some is a combination. Variation between individuals is important for the survival of a species, helping it to avoid extinction in an always changing environment. Explain whether characteristics are inherited, environmental or both. Plot bar charts or line graphs to show discontinuous or continuous variation data. Explain how variation helps a particular species in a changing environment. Explain how characteristics of a species are adapted to particular environmental conditions Natural selection is a theory that explains how species evolve and why extinction occurs. Biodiversity is vital to maintaining populations. Within a species variation helps against environment changes, avoiding extinction. Within an ecosystem, having many different species ensures resources are available for other populations, like humans. Inherited characteristics are the result of genetic information, in the form of sections of DNA called genes, being transferred from parents to offspring during reproduction. Chromosomes are long pieces of DNA which contain many genes. Gametes, carrying half the total number of chromosomes of each parent, combine during fertilisation.	Sparx HW, in class teacher questioning, MCQ's, starter tasks	Exam practice
Autumn Half-term 1	C9 Chemistry of the Atmosphere	The Earth's atmosphere is dynamic and forever changing. The causes of these changes are sometimes man-made and sometimes part of many natural cycles. The problems caused by increased levels of air pollutants require scientists and engineers to develop solutions that help to reduce the impact of human activity.	1. Earth's early atmosphere 2. Greenhouse gases 3. Climate change 4. Carbon footprint 5. Atmospheric pollutants	Develops work from C1 Atomic structure and looks at impact of changes to the earth's atmosphere over time. Students continue to develop graphing skills from ks3 to plot data about the atmosphere	Sparx HW, in class teacher questioning, MCQ's, starter tasks	EOTT
Autumn 1/2	P6 Waves	Waves syllabus topics included are: Properties of waves Transverse and longitudinal waves Reflection and refraction Sound and ultrasound (Higher Tier only) Lenses Black body radiation	Waves syllabus topics included are: 1. Properties of waves 2. Transverse and longitudinal waves 3. Reflection and refraction 4. Sound and ultrasound (Higher Tier only) 5. Lenses 6. Black body radiation	Reflection and absorption of sound Sound needs a medium; the speed of sound changes with the medium Sound waves are longitudinal Human auditory range Light travels through a vacuum; speed of light Transmission of light through materials; absorption, diffuse scattering and reflection at surfaces Ray models to explain imaging in mirrors, refraction and action of convex lenses in focusing Colours and the different frequencies of light; dispersion Differential colour effects in absorption and diffuse reflection.	Sparx HW, in class teacher questioning, MCQ's, starter tasks	Exam practice
Autumn 2/Spring 1	B7 Ecology	In this unit we will explore how humans are threatening biodiversity as well as the natural systems that support it. We will also consider some actions we need to take to ensure our future health, prosperity and well-being.	1. Introduction to Ecology 2. Adaptations 3. Feeding relationships 4. Sampling Required practical 5. Cycling materials 6. Decomposition (Triple only) 7. Biodiversity and conservation 8. Human activity 9. Trophic levels (Triple only) 10. Food production (Triple only)	Make and record observations of organisms. Extract information from charts, interpret information from graphs. Explain every day applications of science.	Sparx HW, in class teacher questioning, MCQ's, starter tasks	Exam practice
Spring 1	P7 Magnetism and Electromagnetism	For this topic, the GCSE physics syllabus states that students should be able to: Describe the attraction and repulsion between unlike and like poles for permanent magnets and explain the difference between permanent and induced magnets Describe how to plot the magnetic field pattern of a magnet using a compass Draw the magnetic field pattern of a bar magnet showing how strength and direction change from one point to another Explain how the behaviour of a magnetic compass is related to evidence that the core of the Earth must be magnetic Describe how the magnetic effect of a current can be demonstrated Explain how the effect of an alternating current in one coil in inducing a current in another is used in transformers	Magnetism syllabus topics included are: 1. Electromagnetic induction 2. Electromagnets 3. Magnetic fields 4. Transformers	Magnetic poles, attraction and repulsion Magnetic fields by plotting with compass, representation by field lines Earth's magnetism, compass and navigation The magnetic effect of current, electromagnets, D.C. motors (principles only)	Sparx HW, in class teacher questioning, MCQ's, starter tasks	Exam practice
Spring 1	C10 - Using resources	Industries use the Earth's natural resources to manufacture useful products. In order to operate sustainably, chemists seek to minimise the use of limited resources, energy consumption, waste and environmental impact in the manufacture of these products.	1. Mining Earth's resources 2. Potable water 3. Waste water 4. Analysis water required practical 5. Life cycle assessments 6. Recycling 7. Extracting metals 8. Corrosion (Triple only) 9. Alloys (Triple only) 10. Ceramics, polymers and composites (Triple only) 11. Haber process (Triple only) 12. NPK Fertilisers (Triple only)	This topic builds on themes from C9 atmosphere and develops students research skills as they review a range of uses of resources on earth such as water, copper and various products	Sparx HW, in class teacher questioning, MCQ's, starter tasks	Exam practice
Revision/MOCKS						