

Module/Unit of Learning	Term Taught	What will students learn?	How will this build a broad and strong foundation?	Links to other subjects
Man vs Machine - Cells and Systems	Autumn 1/2 Or Autumn 2/Spring 1	Students will review the fundamentals of cells as well as the organisation of organisms with a focus on how systems carry out life processes.	Cells and systems are a fundamental part of biology. Understanding of the basic structure of cells and the function of sub cellular structures. This allows students to link organ systems to how they function.	
Man vs Machine - Movement	Autumn 1/2 Or Autumn 2/Spring 1	Students will explore the musculoskeletal system in detail and how it works as a system for support, protection and movement.		PE
Man vs Machine - Work	Autumn 1/2 Or Autumn 2/ Spring 1	Work is done and energy transferred when a force moves an object. The bigger the force or distance, the greater the work. Students will explore this in the context of human movement.	Studying the foundations of longitudinal and transverse waves opens students to more challenging topics at GCSE such as the electromagnetic spectrum and how waves are used for detection and exploration.	.Maths
Man vs Machine - Light	Autumn 1/2 Or Autumn 2/ Spring 1	Students will study the properties of light as a wave and how light rays travel. They will then look at reflection/ refraction and use this to explain why objects appear different colours. Finally, students will look at the structures in the human eye and how they work to provide sight.		Art
Man vs Machine - Sound	Autumn 1/2 Or Autumn 2/ Spring 1	Sound consists of vibrations which travel as a longitudinal wave through substances. The denser the medium, the faster sound travels. The greater the amplitude of the waveform, the louder the sound. The greater the frequency (and therefore the shorter the wavelength), the higher the pitch. Students will then explore how the human ear allows us to interpret these waves.		Music

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Cornish Mining – Earth Structure Rock types and the rock cycle	Autumn 1/2 Or Autumn 2/ Spring 1	Students will learn about the layers of the Earth. They will then focus on the outer layers, studying how sedimentary, igneous and metamorphic rocks form and can be inter converted over millions of years through weathering and erosion, heat and pressure, and melting and cooling.	Understanding the materials that come from the Earth allows discussion at GCSE of resources and how they are obtained, used and done so in a sustainable way. Properties of transition metals and comparison to group 1 is an important foundation for understanding the groupings in the periodic table in Y9.	Geography
Cornish Mining – Earths Resources	Autumn 1/2 Or Autumn 2/ Spring 1	Many resources on Earth are finite. Most metals are found combined with other elements, as a compound, in ores. The more reactive a metal, the more difficult it is to separate it from its compound. Carbon displaces less reactive metals, while electrolysis is needed for more reactive metals. Students will explore displacement reactions and use knowledge of the reactivity series to justify the method of extraction.	Constructing word equations for chemical reactions is another fundamental skill at GCSE.	.
Cornish Mining – Types of reactions	Autumn 1/2 Or Autumn 2/ Spring 1	Combustion is a reaction of a fuel with oxygen in which energy is transferred to the surroundings as heat and light. Students will compare complete and incomplete combustion and		
Cornish Mining – Atmospheric Pollution	Autumn 1/2 Or Autumn 2/ Spring 1	Linking to work on combustion, students will consider the environmental impacts of the products of combustion and other atmospheric pollutants.		
Science at home - Acids and Alkalis	Spring 1/2	The pH of a solution depends on the strength of the acid or alkali.	The pH scale and neutralisation are	

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	Or Spring 2 / Summer 1	Students should be able to identify strong/weak acids/alkalis using an indicator and the pH scale. Mixing an acid and alkali produces a chemical reaction, neutralisation, forming a chemical called a salt and water. Students will look at acids and alkalis that are used in everyday life.	key content that students need to know before studying chemical changes in Y10, including the formation of salts and strong and weak acids. Studying how energy is transferred allows students to link to real world problems, for example, how to best insulate our homes or how to prevent energy loss in a time of energy crisis. This leads into calculating the cost of household energy, which is a life skill that all students will need later in life.	
Science at home – Chemical Energy	Spring 1/2 Or Spring 2 / Summer 1	During a chemical reaction bonds are broken and new bonds formed. If the energy released is greater than the energy required, the reaction is exothermic. If the reverse, it is endothermic. Students will use experimental observations to identify reactions as exo or endothermic.		
Science at home – Heating and cooling	Spring 1/2 Or Spring 2 / Summer 1	When there is a temperature difference between two objects, energy transfers from the hotter to the cooler object. Thermal energy is transferred through different pathways, by particles in conduction and convection, and by radiation. Students will then explore the best methods of insulation to prevent heat loss, depending on the pathway involved.		Catering
Science at home – Energy Transfers	Spring 1/2 Or Spring 2 / Summer 1	Students will learn about the energy stores and how energy transfers from store to store. While some transfers are useful, some are wasted or dissipation occurs, the total energy is always conserved. Students will show how energy is transferred between energy stores in a range of real-life examples.		Maths
Science at home – Energy Costs	Spring 1/2 Or Spring 2 / Summer 1	Linking to energy transfers, students will look at how households pay for electricity based on the amount of energy transferred. They will calculate the cost of running devices in the home.		Maths

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Science at West Cornwall hospital - Breathing	Spring 1/2 Or Spring 2 / Summer 1	Students will learn about the respiratory system, linking the structure of organs/tissues involved to their function in ventilation and gas exchange. Students will also learn how the process of diffusion links to gas exchange in the lungs. We use this knowledge to learn about the impact of smoking on the body.	This module aims to build on prior knowledge so that students can articulate why it is important to keep our organs and organ systems healthy in order to function correctly. The module also builds students cultural capital knowledge of the effects of issues such as smoking, drugs and alcohol. At GCSE students will learn in more detail about how variation leads to natural selection and speciation. This module gives students the strong foundational knowledge of key biological terms such as DNA and variation.	PE
Science at West Cornwall hospital – Variation	Spring 1/2 Or Spring 2 / Summer 1	Students will explore the differences between members of the same species – variation. They will identify whether the cause for the variation is environmental, genetic or a combination of both.		
Science at West Cornwall hospital – Inheritance	Spring 1/2 Or Spring 2 / Summer 1	Linking to work on variation, students will then learn the history and science behind genetic variation, which is the result of DNA being passed on from parents to offspring in reproduction. They will use information about parental genes to predict the likelihood of particular characteristics being passed on. Finally, students will explore examples of genetic disease.		
Science at West Cornwall hospital – Evolution	Spring 1/2 Or Spring 2 / Summer 1	After studying the variation topic, students will then explore how this variation drives natural selection, explaining how organisms are adapted to their environment. They will then look at evidence to explain why some species have become extinct while others have adapted to changing conditions.		

