

Year 8

Timing	Unit Title	Key Question	Knowledge	Assessing Understanding
Autumn Half Term 1	Energy in our diets and The digestive system	What happens to the food we eat?	- Content of a healthy human diet: carbohydrates, lipids (fats and oils), proteins, vitamins, minerals, dietary fibre and water, and why each is needed - Calculations of energy requirements in a healthy daily diet - The consequences of imbalances in the diet, including obesity, starvation and deficiency diseases - The tissues and organs of the human digestive system, including adaptations to function and how the digestive system digests food - Enzymes simply as biological catalysts - The importance of bacteria in the human digestive system	Students will be assessed on their ability to: - Recall the knowledge covered - Interpret graphical and experimental data, - Make connections between different areas of understanding, explain the scientific processes covered - Evaluate experimental procedures and results Skills - Graph drawing - Data analysis - Description - Explanation - Evaluation - Comparison - Scientific literacy Assessment point information Students will be assessed using written exam questions in a one hour paper.
	Compounds, formulae and equations	How do we use symbols to identify materials and reactions?	- Safety review and introduction to the Periodic Table - How to determine the formula of a compound using valency - Using ideas about conservation of mass to write balanced equations for chemical reactions	
	Forces and Motion 2	How do we lift a heavy weight with very little effort?!	- Describe turning forces as moments and calculate the moment of a force - Solve problems using the pressure equation - Describe how the pressure varies as the depth increases in a fluid - Use particle model to define density as how spread out the mass of a substance is - Describe what the different shapes of a speed time graph tell us	
Autumn Half Term 2	Photosynthesis introduction	Why don't plants walk?	- Plants make carbohydrates in their leaves by photosynthesis - Word equation	

			Experiments used to investigate photosynthesis	
	Reactions of acids and alkalis	Why are acids and alkalis dangerous? What happens when you react acids with alkalis?	- Defining acids and alkalis - Making indicators - The pH scale for measuring acidity/alkalinity; and indicators - Reactions of acids with bases to produce a salt plus water	
	Earth and Space 2	Is there anybody out there?	- Appreciate the size of the universe and the objects within it - Be aware that gravity is different on different planets - Know what an eclipse is and why it happens - Be able to explain how a star is formed - Know what happens at the end of a star's life - Know a bit about how black holes form and why we have them	
Spring Half term 1	Further photosynthesis	What do plants need to live?	- Limiting factors in photosynthesis - The mineral ions plants take up in their roots and their uses	Students will be assessed on their ability to: - Recall the knowledge covered - Interpret graphical and experimental data, - Make connections between different areas of understanding, explain the scientific processes covered - Evaluate experimental procedures and results Skills - Graph drawing - Data analysis. - Description - Explanation - Evaluation
	Further neutralisation	What else reacts with acids?	- Reactions of acids with carbonates to produce a salt plus water and carbon dioxide - Planning and carrying out an investigation	
	Waves 2	How do we see colours?	- Consider the properties of light - Investigate the reflection of light - Investigate the refraction of light - Know that white light is made up of all the colours - How do we filter light into different colours? - How do we mix colour to make new ones? - How is the eye designed to see?	

Spring Half term 2	Ecology	How are plants and animals all connected?	• Classification of organisms • The interdependence of organisms in an ecosystem, including food chains, food webs and pyramids • How humans affect the environment, including the accumulation of toxic materials • The importance of plant reproduction through insect pollination in human food security	• Comparison • Scientific literacy Assessment point information Students will be assessed using written exam questions in a one hour paper.
	Reactions of metals	How do metals react?	• What are the properties that distinguish metals and non-metals? • Reactions of metals and acids • Reactions of metals and oxygen • Reactions of metals and water • Rusting and its prevention	
	Electricity and Magnetism 2	How do we use electricity?	• Describe models that explain how electricity flows in circuits • Investigate resistance • Recap Circuits	
Summer Half term 1	Genetics and evolution	How does DNA make us who we are?	• Heredity as the process by which genetic information is transmitted from one generation to the next • A simple model of chromosomes, genes and DNA in heredity, including the part played by Watson, Crick, Wilkins and Franklin in the development of the DNA model • Differences between species • The variation between individuals within a species being continuous or discontinuous, to include measurement and graphical representation of variation	Students will be assessed on their ability to: • Recall the knowledge covered • Interpret graphical and experimental data, • Make connections between different areas of understanding, explain the scientific processes covered • Evaluate experimental procedures and results Skills • Graph drawing

Summer Half term 2	Further metal reactions Energy changes in reactions		• Reactivity Series • Displacement reactions • How to classify reactions as exothermic or endothermic • Representing exothermic and endothermic reactions on energy level diagrams • Calculations with bond energies	• Data analysis. • Description • Explanation • Evaluation • Comparison • Scientific literacy Assessment point information Students will be tested in their 1 hour in class assessment.
	Electromagnetism	How do we use electromagnetism?	• Look at the link between current and magnetic fields • Investigate the strength of an electromagnet • Find out about uses of electromagnets	
	The brain	What's going on inside your brain?	• Structure and function of nerve cells • Reflexes • Structure and function of the different areas of the brain • Brain disorders	
	Structure of the Earth and products from rocks	What chemicals can we get from the Earth?	• The composition of the Earth • The structure of the Earth • The rock cycle and the formation of igneous, sedimentary and metamorphic rocks • Earth as a source of limited resources and the efficacy of recycling • the production of carbon dioxide by human activity and the impact on climate	
	Energy and Power 2	What do we mean by Energy?	• Define energy stores and pathways • Look at different energy scenarios and describe them in terms of their stores and pathways • Know what is meant by power • Know what is meant by the efficiency of an energy transfer and how to calculate it	