

Biology	Advent 1	Advent 2	Lent 1	Lent 2	Penetcost 1	Pentecost 2
<b>Topics</b>	Organisation and the Digestive System and Organising animals and plants	Communicable Diseases and Preventing and Treating Disease	Preventing and Treating Disease and Non-communicable Diseases	Photosynthesis and Respiration.	The Human Nervous System	Adaptations, Interdependence, and Competition and Organisms and Ecosystems
<b>Skills</b>	To understand the chemistry of food (carbohydrates, proteins, lipids) and the enzymes that break them down. How blood flows around the body and through the heart. Describe and explain the tissues and organs in a plant.	To understand what pathogens are (bacterial, viruses, fungi and protists), how they spread and how to prevent infections. Explain the difference between antibiotics, vaccines and painkillers along with how we develop new drugs.  Triples: Use their practical skills to grow bacteria, identify plant defences and know how monoclonal antibodies are made and what we use them for.	Evaluate information re non-communicable diseases and the risk factors for them. Understand the causes and treatment for specific non-communicable diseases.	Understand what photosynthesis is and how plants use glucose. Use practical skills to complete the light intensity and rate of photosynthesis practical. Identify similarities and differences between aerobic and anaerobic respiration.	Know the principles of homeostasis. Understand the structure and function of the human nervous system and what a reflex is.  Triples: Describe the structure of the brain and the eye.	Define communities, ecosystems, abiotic and biotic. Use practical skills to measure the population size of a species in a habitat using sampling techniques. Understand what plants and animals compete for along with their adaptations. Understand how cycles work for carbon, decay and water.
<b>Key Questions</b>	How do enzymes and bile help to make digestion efficient? Evaluate the scientific and social arguments around artificial hearts / pacemakers.	Why do we need a full trial of all newly developed drugs? Explain all of the defence responses your body has to prevent microorganisms from making you ill.	Describe and explain the different treatments used to treat cancer. Type 2 diabetes is sometimes called an epidemic. Suggest how the 'epidemic' might be controlled.	Explain the difference between aerobic and anaerobic respiration. In terms of limiting factors explain why plants in the rainforest are much larger than those in UK woodland.	Describe and explain what happens when you touch a hot pan indicating when it's electrical or chemical. Triples: Explain what myopia and hyperopia are.	Explain how a new predator can change the balance of organisms in a community and an entire habitat. Describe the processes of photosynthesis, respiration, and combustion in the carbon cycle.
<b>Assessment</b>	End of topic key sticky knowledge assessment (QQQs)	End of topic key sticky knowledge assessment (QQQs) . Cumulative written assessment.	End of topic key sticky knowledge assessment (QQQs). Cumulative written assessment.	End of topic key sticky knowledge assessment (QQQs)	End of topic key sticky knowledge assessment (QQQs) . Paper 1 Mock Exam	End of topic key sticky knowledge assessment (QQQs).

Chemistry	Advent 1	Advent 2	Lent 1	Lent 2	Penetcost 1	Pentecost 2
Topics	Bonding, structure, and the properties of matter	Understanding chemical changes	Electrolysis and Extraction of aluminium and energy changes in a reaction	More quantitative chemistry	The rate and extent of chemical change	carbon compounds as fuels and feedstock
Skills	Use theories of structure and bonding to explain the physical and chemical properties of materials.	Use quantitative analysis to determine the formulae of compounds and the equations for reactions. To understand how to predict exactly what new substances would be formed in a reaction. Use graphical display to determine energy changes in a reaction.	To understand how to predict exactly what new substances would be formed in a reaction. To understand how energy is transferred during a reaction.	Identifying different types of chemical reaction to establish patterns and to make predictions about the behaviour of other chemicals.	Using the particle model to explain how fast chemical reactions proceed. Use graphical displays to determine rate of reaction.	Identify the source of crude oil and use our knowledge of the properties of hydrocarbons to separate crude oil into useful fractions.
Key Questions	How does the boiling point and melting point relate to bonding and structure?	How do analysts determine the purity of chemical samples and monitor the yield? How do scientists develop the wide range of different materials we use daily?	How do we extract aluminium from an ore? How do cells and batteries use these chemical reactions to provide electricity?	How do chemists communicate ideas and work with industry?	How can we manipulated reactions in order to speed them up or slow them down? Are chemical reactions reversible?	How do scientists modify organic molecules from crude oil to make new and useful materials such as polymers, pharmaceuticals, perfumes and flavourings, dyes and detergents?
Assessment	End of topic key sticky knowledge assessment (QQQs)	End of topic key sticky knowledge assessment (QQQs) . Cumulative written assessment.	End of topic key sticky knowledge assessment (QQQs)	End of topic key sticky knowledge assessment (QQQs) . Cumulative written assessment.	End of topic key sticky knowledge assessment (QQQs) . Paper 1 Mock Exam	End of topic key sticky knowledge assessment (QQQs).

Physics	Advent 1	Advent 2	Lent 1	Lent 2	Penetcost 1	Pentecost 2
Topics	Energy Transfer by Heating and Electric Circuits	Electricity in the home and Molecules and Molecules and Matter.	Molecules and Matter and Radioactivity.	Forces and Balance	Forces and Balance	Motion and Force and Pressure
Skills	To be able to carry out in-depth practical assessments in terms of specific heat capacity calculations and associated thermal radiation investigations	To be able to describe and explain the nature of electricity and its key components. Students should be able to recognise key components by their graphical nature and use this information to design and explain series and parallel circuits	Students should be able to explain how the particle model of matter can be used in various situations, to explain change of state between various materials in the periodic table. Students should also be able to discuss the nature and use of radioactive materials in modern society	To be able to explain why objects move in various situations using newtons laws of motion. To amylase industrial situations in terms of pivots, force magnifiers and reducers and gearing systems	To be able to analyse more complex force situations using more advanced calculation methods such as parallelogram of forces	Learn how to calculate pressure in various situations both above ground and below sea level
Key Questions	What is the nature of thermal radiation and how is it used in modern society	What are the key difference between series and parrel circuits and which type would you use in various situations	What is meant by the term state of matter. Is nuclear energy the way forward and its pros and cons to this argument	Why does an object move, Stay stationary or change direction and what forces are behind these movements	How does a pully, leaver or gear system work	What depth can a human or submarine dive to without causing and injury or structural failure to the person or machine
Assessment	End of topic key sticky knowledge assessment (QQQs)	End of topic key sticky knowledge assessment (QQQs) . Cumulative written assessment.	End of topic key sticky knowledge assessment (QQQs).	End of topic key sticky knowledge assessment (QQQs) . Cumulative written assessment.	End of topic key sticky knowledge assessment (QQQs) . Paper 1 Mock Exam	End of topic key sticky knowledge assessment (QQQs).