Curriculum Overview – Physics					
	Year 7	Year 8	Year 9	Year 10	Year 11
Energy	Students study the concept of energy transfers in society and at home as well as the use of generating electricity by using energy resources. Students learn how to use a mathematical formula in order to calculate unknown quantity. They learn how to evaluate energy resources to determining which one would be best to use based on different factors. Links with content also studied at GCSE.		The first unit of GCSE content is the energy topic. Students learn energy is transferred between different objects and link this with the idea of work done. Students study in more detail how energy is transferred or stored as different types of energy and improve their understanding at identify the different between them. Students continue to develop their knowledge of how electricity is generated by using energy resources. Furthermore, learn to evaluate the advantages and disadvantages of each type for electricity generation. Student look at thermal energy transfers and how certain objects will affect the rate of thermal energy transfer. They will obtain declarative and procedural knowledge during lessons and practicals. This is specifically for the required practical for insulation.	Students learn to apply their understanding of energy transfers through calculations by learning to use the kinetic, gravitational potential, elastic potential and efficiency equations. Furthermore, by using simple assumptions, students can demonstrate the effect on an object via calculation. This is when energy is transferred between two different types.	
Electricity	Students study the basics of electricity circuits by learning how to construct an electrical circuit physically using electrical components from a circuit diagram. They study the basic concepts potential difference, current and resistance in both series and	CURRENT – DEVEOPING NEW YEAR 8 NEXT YEAR Students study the basic concepts of electricity of potential difference, current and resistance in both series and parallel circuits. They also learn about the cause of static	For current year 9 In year 9, Students develop their knowledge of electricity which is used to power devices in their home by using plugs, alternating and direct current,	For current year 10 In year 10, Students develop their knowledge of electricity which is used to power devices in their home by using plugs, alternating and direct current,	

	parallel circuits. They learn how ring mains are used by electricians in building and homes. They also learn about the cause of static electricity and the forces that act between changed objects. This links to content also studied at GCSE.	electricity and the forces that act between changed objects. Links with content also studied at GCSE.	Student learn how electricity is transported around the country via the National grid Students delve more deeply into static electricity by discussing what causes a charged object to lose its charge what dangers this can cause.	Student learn how electricity is transported around the country via the National grid Students delve more deeply into static electricity by discussing what causes a charged object to lose its charge what dangers this can cause. For next years 10 2024 - 2025 In year 10 students delve deeper into the effects of potential difference, current and resistance in both series and parallel circuits. They will look at how to interpret mathematical calculations to explain changes in the outputs of different devices within circuits. They will also improve their knowledge at being able to set up their own circuits to take measurements using ammeters and voltmeters. They will obtain declarative and procedural knowledge during lessons and practicals. This is specifically for the required practicals for the resistance of a wire and IV characteristics for resistors, filament lamps and diodes. Students learn about a greater variety of electrical components and learn how to use their IV graphs to explain the function of the devices.	

				Furthermore, students learn how LDR's and thermistors are used in sensing circuits in the home and society.	
Particle Model of Matter	The particle model is formally introduced in a year 7 Chemistry topic, and students learn how to use it to explain the properties of the different states of matter. Students use the particle model to explain diffusion. Students are introduced to the link between changes of state and energy and as part of this learning to explain the shape of heating (or cooling) curves Students learn about solubility and in particular the link between solubility and temperature for solid. Students learn what a mixture and a pure substance are in terms of particles. During this students will interpret simple graphs and describe trends shown by graphs. The properties of metals and non-metals and the usefulness of classifying materials is studied.		This is the first topic studied in year 9 Students develop their knowledge on structure and density of different states of matter. They will obtain declarative and procedural knowledge during lessons and practicals. This is specifically for the required practicals for density and specific heat capacity. Students develop their knowledge that materials change temperature and state differently. This is due differences in their specific heat capacities and specific latent heats respectively. Students learn about the motion of particles in gases and use the gas laws to explain how gases changes pressure, volume or temperature. Physicists will delve into this further by calculating the changes in gas pressure and volume.	For the current year 10 only- Students develop their knowledge on the structure and density of different states of matter. They will obtain declarative and procedural knowledge during lessons and practicals. This is specifically for the required practicals for density and specific heat capacity. Students develop their knowledge that materials change temperature and state differently. This is due differences in their specific heat capacities and specific latent heats respectively. Students learn about the motion of particles in gases and use the gas laws to explain how gases changes pressure, volume or temperature. Physicists will delve into this further by calculating the changes in gas pressure and volume.	
Atomic structure and radioactivity			Students will expand on their knowledge of the atom from knowledge learnt in KS3. Students will learn about the different types of nuclear radiation and their uses. They will develop their knowledge on how radioactive decay can be used to describe the		

			activity of a radioactive substance over time. Physicists will learn about background radiation as well as the link between half life and risk. Physicists will also apply their knowledge of nuclear radiation to understand its role in medicine. Finally, they will learn about the differences between fission and fusion.		
Forces and their interactions	Students study contact and non-contact forces and how they are represented with free body diagrams. They will how to use these diagrams to explain the overall resultant force which is acting on an object. Students learn the difference between mass and weight. Additionally, they learn how to explain how an object's weight would change on different planets. Links with content also studied at GCSE.			In year 10, students delve deeper into the study of contact and non-contact forces. They develop their knowledge further on how they are represented with free body diagrams. They expand on their knowledge on how to calculate or resolve the resultant force acting on an object from or into its individual components respectively. Students develop their knowledge on different types of material and how they respond to forces being applied to them. Additionally, they look at calculating the effect of a force on different objects. They will obtain declarative and procedural knowledge during lessons and practicals. This is specifically for the required practical on Hooke's Law.	

				Physicists will also learn about the effects of moments, levers and gears on objects. Finally, they will develop their knowledge on describing and calculating pressure in fluids and gases. Furthermore, they will learn how to explain changes in atmospheric pressure	
Forces and Motion	Students study the concept of speed. Students begin with how to calculate speed how motion of objects can be demonstrated using distance time graphs and can be explained in terms of forces. Students learn how to explain the motion of an object from a distance time graph and how changes in the forces acting on an object will affect its motion. This also links with content studied at GCSE.				In year 11, students begin delve deeper into the motion of objects by identifying motion of objects from distance time and velocity time graphs. Students will develop their knowledge in explaining the motion of objects by applying Newton's three laws. They will also look into explain the changes in motion of falling objects and why they reach terminal velocity. Furthermore, students will obtain declarative and procedural knowledge during lessons and practicals. This is specifically for the required practical on Newton's Second Law Practical Physicists will also look into momentum and how it changes in a moving object during a collision.
Waves		CURRENT – DEVEOPING NEW YEAR 8 NEXT YEAR In the light and sound topic, students learn about how both light and sound waves			In year 11, students delve deeper into their knowledge of waves by learning key wave properties to explain the difference between waves. They will obtain

		travel. They develop their knowledge on how light travels through objects and how it interacts with them by the process of reflection and refraction. They will use this to understand why objects appear certain colours in different types of light. Students learn how sound travels as waves and how it is transferred at different speeds through different materials. Finally, they learn how the speed of sound can be calculated. This also links with content studied at GCSE.			declarative and procedural knowledge during lessons and practicals. This is specifically for the required practicals waves in liquids and solids. Students develop their knowledge on the types of electromagnetic radiation and how their properties are used to describe how they are generated and their dangers. Physicists will expand further on their knowledge of refraction by learning how light rays travels through concave and convex lenses to form images with different sizes and orientations. Physicists will delve deeper into the applications of sound waves for how it is used for sonar and ultrasound to detect the distances between objects.
Magnetism and electromagnetism		CURRENT – DEVEOPING NEW YEAR 8 NEXT YEAR Students study the link between electricity and magnetism and how magnetism can be induced a current through a conductor. Student learn how to explain different strategies which can be used to change the strength of an electromagnet. Links with content also studied at GCSE.			Students delve deeper into magnetism by learning about induced and permanent magnetic, how any magnet will have magnetic field around it. They will obtain declarative and procedural knowledge during lessons and practicals. This will be a practical on showing the magnetic fields around a bar magnet using iron fillings and compasses. Students will develop their knowledge how to explain

					the operation of different electromagnetic devices. Furthermore, students learn about Fleming's left hand rule and how it can be used to explain the motion of a coil in an electric motor. Physicists will apply their understanding of Fleming's left hand rule to explain the generator effect as well as the operation of loud speakers and microphones. They also develop knowledge on how transformers can affect the properties of electricity via explanation and calculation.
Space					Physicists learn about the different types of objects within the solar system and how to describe the differences between them. They develop their knowledge on the life cycle and function of different masses of stars. Finally, they learn how of the colour of a star's light is used to describe its motion from Earth and how this gives evidence towards the expansion of the universe and the big bang.