Key Stage 3 Science Curriculum

THE WINSFORD ACADEMY

In Year 7 Students will study:

Winter Term		Spring Term		Summer Term	
Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Forces (Phys) **Speed** students learn to calculate speed and use time distance graphs. **Gravity** students learn about the force of gravity. How it affects the weight of objects and how it changes in different situations. **Organisms (Bio)** **Movement** students study how the skeletal system works, the roles of muscles, ligaments and tendons **Cells** Students look at the structure of cells and how they form the building blocks of all life!	**Matter (Chem)** **Particle Model** students learn about the organisation of particles in different states of matter and how this affects the properties of different materials. **Separating Mixtures** Students investigate techniques for separating simple mixtures. **Electromagnets (Phys)** **Electricity** Students learn about series and parallel circuits. How current, voltage and resistance behave in these circuits. **Static Electricity** An introduction to the role of electrons in creating static charges.	**Earth (Chem)** **Earth Structure** Students learn about the structure of the Earth, the three rock types and the rock cycle. **The Universe** Students learn about Earth's position in space and the mechanism behind days, nights, months and years. **Ecosystems (Bio)** **Interdependence** The study of food webs and food chains. Students consider the effect that changes made in one part of a food chain can affect another part of the food web or ecosystem. **Plant Reproduction** Students learn how plants reproduce.	**Energy (Phys)** **Energy Costs** Students look at the use and cost of electricity in the home. **Energy Transfer** Students study how energy s transferred from one form to another in different situations. **Reactions (Chem)** **Metals and Non-Metals** A chemistry unit where students start to study the reactions of metals and non metals. **Acids and Alkalis** Students are introduced to acids and alkalis and the reactions that they undertake	**Waves(Phys)** **Sound** Students will learn how sound waves are produced and how they travel **Light** Students study the properties of light and how we see. **Genes (Bio)** **Variation** Students study how humans and different species vary and what causes this variation. **Human Reproduction** The study of human reproduction and development of a foetus.	**Intervention** Students will spend time revisiting the key concepts from topics that assessment data shows they struggled with throughout the year. **Science Fair** Students research and investigate and area of science with their teacher's guidance to produce a science fair project. Creativity, teamwork

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In Year 8 Students will study:

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Winter Term		Spring Term		Summer Term	
Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Reactions (Chem) **Chemical Energy** Students learn about exo and endo thermic reactions, energy profiles for reactions and the role of catalysts. **Types of Reaction** students learn about the a variety of different reactions and are introduced to conservation of mass. **Electromagnets (Phys)** **Magnetism** students study magnetic field and how they will influence magnetic materials. **Electromagnetism** Students look at the use of electromagnets in a number of different situations.	**Ecosystems (Bio)** **Respiration** students learn about aerobic and anaerobic respiration and how they are used in the human body as well as applications outside the body. **Photosynthesis** Pupils study the process of photosynthesis in plants and investigate how the rate of photosynthesis can be measured. **Matter (Chem)** **Periodic Table** Pupils study the organisation of the periodic table and the chemistry behind it's structure. **Elements** Students study the chemistry of elements and their combination to make different compounds.	**Forces (Phys)** **Contact Forces** Pupils study how different forces interact with one another to create movement or change in shape. **Pressure** Students learn about pressure in fluids and how to calculate it in different situations. **Genes (Bio)** **Evolution** The study of the role of competition and variation to drive the mechanism of natural selection and ultimately evolution. **Inheritance** Students learn about the role of genetic material in inheritance	**Waves (Phys)** **Wave Effects** Students apply there learning about waves to applications such as ultrasound and loud speakers **Wave Properties** Students study longitudinal and transverse waves. They recap the properties of light and explore how wavelength effects colour. **Earth (Chem)** **Climate** Students look at the composition of the atmosphere and how human activity is changing it, leading to climate change and global warming. **Earth Resources** Students explore the damage to earths resources and the importance of recycling.	**Energy (Phys)** **Work** Students are introduced to the concept of work as the transfer of energy. Students calculate work done in different situations. **Heating and Cooling** The behaviour of particles as materials are heated and cooled. **Organisms (Bio)** **Breathing** Students study the parts of the breathing systems, mechanism for breathing and problems associated with the breathing system. **Digestion** The study of the human digestive system, its organs functions and their roles.	**Intervention** Students will spend time revisiting the key concepts from topics that assessment data shows they struggled with throughout the year in preparation for the end of year exams.

Key Stage 3 Science Curriculum

In Year 9 Students will study:

THE WINSFORD ACADEMY

Winter Term		Spring Term		Summer Term	
Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Reactions **Neutralisation & Combustion** Students find the number of different reactions in chemistry daunting. We revisit the main ones and explore some further reactions that will benefit learning post KS3 **Electromagnets** **Electrical components** Abstract topic that students always struggle with. Unit builds on work covered in year 7 and 8 and introduces so new electrical components and different circuits.	**Organisms** **Diffusion & Diet** Microbiology Not explored through years 7 and 8. Useful for GCSE and ks5 as many students go on to study Biology further. **Matter** **Atoms, Elements, Compounds, Mixtures** Students explore the simple building blocks of materials and explain how industry separates mixtures into pure substances.	**Forces** **Speed & Free body Diagrams** Recap work covered so far in forces and introduce Newton's Laws **Genes** **Mitosis and Meiosis – Cell Division** Students learn how cells reproduce along with the reproduction of our species.	**Waves** **Echolocation & Human eye** Electromagnetic Spectrum Not covered in much detail in years 7 and 8. Can tie together units on light and sound waves **Earth** **Space** Students love space. It has been removed for combined Science students so pupils this will be the last time to explore the Earth's solar system and beyond. Students also learn about humanities search for galactic answers	**Energy** **Energy Transfer & Heat** Further development of Energy transfers and introduction to GPE and KE calculations. **Ecosystems** **Interdependent species & food security** Students learn how species rely on each other and how the human food change is reliant on strong ecosystems.	**Intervention** Students will spend time revisiting the key concepts from topics that assessment data shows they struggled with throughout the year.