Science

Curriculum core purpose. Intent

Our science curriculum at Old Buckenham High School is broad, knowledge-rich, and inclusive. We aim to inspire curiosity, critical thinking, and a lifelong passion for discovery. Through a strong emphasis on scientific knowledge, conceptual understanding, and exposure to practical activities, our curriculum empowers students to become confident scientists who can question and make sense of the world around them.

The science curriculum builds secure progression from Key Stage 2 through to Key Stage 4, preparing students for further study or employment in an increasingly scientific and technological world. We have sequenced our curriculum to ensure that it equips all students with a deep understanding of key scientific principles, whilst encouraging them to think analytically and creatively. By introducing complex scientific concepts early and revisiting them frequently, we give our learners the best opportunities for success, as this supports them in making connections between the three strands of science: Biology, Chemistry, Physics and to other curriculum areas.

Community

Science helps students understand the world around them. By engaging with topics such as climate change, sustainable living, health, and technological development, students begin to understand their role in shaping a better future and how this can impact many individuals not just themselves. As scientists, they learn to ask thoughtful questions and consider the ethical implications of scientific advancements. This helps them become informed individuals who are ready to tackle local and global challenges by contributing positively to their communities.

Ambition

Our science curriculum is extremely ambitious, the content included prepares students well for future study and employment from understanding the properties of hydrogen peroxide, which is used in bleach by hairdressers, to electricians understanding current, to farmers understanding why it is important to rotate their crops. The curriculum provides a deep understanding of scientific concepts, alongside developing essential skills in critical thinking and analysis. We set very high expectations for all our learners, ensuring students are exposed to meaningful practical work and frequent assessment for learning to check every pupil's knowledge. We offer triple science and combined science to our students and encourage them to be ambitious when making their choices to help them to develop their scientific knowledge even further.

Respect

We trust our pupils to carry out scientific experiments safely and responsibly, which shows them that we value their judgments. This trust helps us to demonstrate our respect for our students as learners. When students are given the responsibility to work independently or in groups during practical investigations, they feel inspired and take pride in their learning. This creates a climate for learning where students are more likely to engage with the content, support one another, and take accountability for their own work. By placing this trust in them, we help students to develop as scientists and as responsible members of the school community.

Content-Knowledge and Skills.	Subject specific pedagogy
The science curriculum develops students' ability to: • Make links across disciplines, especially with Maths, DT and Geography, to reinforce numerical literacy and understanding the world around us. • Develop fine motor skills using specialist scientific equipment, preparing them for further study and employment. • Analyse data and look for patterns which could give explanations for scientific theories and ideas. • Look back on how far technology has advanced and how this occurred, due to scientific theory and discovery.	In science at Old Buckenham High School, we use dual coding to present information in different formats, supporting the learning of pupils, especially for abstract concepts. This is in the form of pictures demonstrations, videos, physical models and class practical activities. In addition, we model concepts frequently and repeatedly to ensure pupils have a secure understanding of how to apply their knowledge to different contexts, to support them with exam-technique. Science has a vast volume of tier three subject-specific vocabulary, we use cold calling questioning to check for understanding in every pupil. Our take-5 activities promote retrieval practice, helping students to build their schemata and make connections between pieces of information. We use call and response to support pupils with their oracy and to encourage them to use more of our tier three vocabulary in their discussions and written answers. We use mini whiteboards as another method of assessment for learning, which gives teachers and students immediate feedback on their level of

• Critically comment on issues facing the population locally and globally, such as climate change, global warming, farming and finding renewable energy resources.	knowledge so that we adapt our teaching to meet the needs of every learner in the classroom.

Science Curriculum Content	**Autumn 1**	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Year 7	**Topic**: 7B1 Cells and Movement **Key concepts**: Cell structures and functions Specialised cells Skeleton and muscular system **Topic**: 7C1 Properties of matter & separating mixtures **Key concepts**: States of matter and changes of state Density and diffusion Separating mixtures **Topic**: 7P1 Energy costs and transfers **Key concepts**: Renewable and non-renewable resources Power Electricity in the home		**Topic**: 7B2 Reproduction and Variation **Key concepts**: Reproductive systems Birth and the menstrual cycle Continuous and discontinuous variation **Topic**: 7C2 Periodic table and Elements **Key concepts**: Atoms, elements, compounds Group 1, 7 and 0 Chemical formula **Topic**: 7P2 Speed and Gravity **Key concepts**: Calculating Speed Distance-time graphs Mass Vs weight		**Topic**: 7B3 Ecology - Interdependence **Key concepts**: Food chains and food webs Predator-prey relationships Producers, consumers and decomposers **Topic**: 7C3 Chemical Reactions – Acids and Alkalis **Key concepts**: pH and the pH scale Indicators Neutralisation reactions **Topic**: 7P3 Sound and Light **Key concepts**: Longitudinal and transverse waves The Ear The Eye and ray diagrams	
Year 8	**Topic**: 8B1 Respiration and photosynthesis **Key concepts**: Aerobic and anaerobic respiration Impact of exercise on the human body Factors affecting the rate of photosynthesis **Topic**: 8C1 Earth and Resources **Key concepts**: Earth structure Rock Cycle Climate change and the greenhouse effect **Topic**: 8P1 Forces and Pressure **Key concepts**: Contact and non-contact forces Equilibrium Calculating Pressure		**Topic**: 8B2 Breathing and Digestion **Key concepts**: Digestive system Enzymes Respiratory System **Topic**: 8C2 Metals and non-metals & Atomic Structure **Key concepts**: Reactivity Series Reactions with metals Introduction to the structure of the atom **Topic**: 8P2 Electricity and Magnetism **Key concepts**: Voltage, Resistance and Current Magnetism and magnetic materials Electromagnetism		**Topic**: 8B3 Inheritance and Evolution **Key concepts**: Genetic and environmental variation DNA, genes and chromosomes Natural Selection **Topic**: 8C3 Chemical Energy and Reactions **Key concepts**: Endothermic and exothermic reactions Thermal decomposition Combustion **Topic**: 8P3 Space and Universe **Key concepts**: Stars, moons and planets Life in space Life cycle of a Star	
Year 9	**Topic**: B1 Cell Biology and Movement **Key concepts**: Structure of plant, animal and bacteria cells Light and electron microscopes Diffusion, osmosis and active transport **Topic**: C1 Atomic Structure and the Periodic Table **Key concepts**: Electronic configuration History of the periodic table and the atom Groups 1,7 and 0 on the periodic table **Topic:** P1 Energy Energy stores and using equations Conservation of energy Energy resources and efficiency		**Topic**: B2 Organisation **Key concepts**: Digestive system and enzymes The heart and lungs Plant organisation **Topic**: C2 Structure and Bonding **Key concepts**: Covalent bonding Metallic bonding Ionic bonding Giant covalent structures Nanoparticles Changes of state		**Topic**: B3 Infection and Response **Key concepts**: Viral, bacterial, fungal and protist diseases Human immune system Non-communicable disease **Topic**: C4 Chemical Changes **Key concepts**: Reactivity series and metal extraction Metals, acids and neutralisation reactions Electrolysis **Topic**: P3&4 Changes of State and Atomic Structure **Key concepts**: Internal energy and specific heat capacity Radioactivity – alpha, beta and gamma	

Science Curriculum Content 2025-26

Year 10 (Triple and Combined Science)	**Topic**: B1 Cells and Movement **Key concepts**: Cell structure/ recap from yr 9 Stem cells and ethics Cell division (Mitosis) **Topic**: C3 Quantitative Chemistry **Key concepts**: Conservation of Mass Relative Formula Mass Moles (HT only) **Topic**: P5 Forces **Key concepts**: Contact and non-contact forces Vectors and Scalars Work done Motion and Acceleration Momentum (HT only)	**Topic**: C5 Energy Changes **Key concepts**: Endothermic and exothermic reactions Reaction profiles **Topic**: P5 Forces **Key concepts**: Contact and non-contact forces Vectors and Scalars Work done Motion and Acceleration Momentum (HT only) **Topic**: B4 Bioenergetics **Key concepts**: Aerobic and Anaerobic respiration (animals, plants, microorganisms) Impact of exercise on the body Photosynthesis and affecting factors	**Topic**: C6 Rate of Reaction Key concepts: Impact of temperature, concentration, pressure, catalysts on rate of reaction Equilibrium and dynamic Equilibrium **Topic**: B5 Homeostasis and Response **Key concepts**: Maintaining blood glucose levels, water levels and temperature Diabetes The menstrual cycle, hormones and contraception Nervous system and responses to stimuli **Topic**: P6 Waves **Key concepts**: Longitudinal and transverse waves Wave calculations Electromagnetic Spectrum	**Topic**: P2 Electricity **Key concepts**: Circuits and components Current and potential difference Resistance and power Mains Electricity and the National Grid **Topic**: B5 Homeostasis and Response - continued **Topic**: C9 Chemistry of the Atmosphere **Key concepts**: Earth's current atmosphere and the early atmosphere Water Cycle Carbon cycle Climate change and the greenhouse effect	**Topic**: P2 Electricity - continued **Topic**: B6 Inheritance and Evolution **Key concepts**: Genetic inheritance and Punnet squares Inheritance of genetic conditions Meiosis Selective breeding and genetic engineering Evidence for evolution and fossils Antibiotic Resistance Classification **Topic**: C10 Using Resources **Key concepts**: Earth's resources Potable water Life cycle assessments Reducing, reusing and recycling	**Paper 1 mock revision**
Year 11 Triple science	**Topic**: B6 Inheritance and Evolution **Key concepts**: Genetic inheritance and Punnet squares Inheritance of genetic conditions Meiosis Selective breeding and genetic engineering Evidence for evolution and fossils Antibiotic Resistance Classification **Topic**: P6 Waves **Key concepts**: Electromagnetic spectrum Uses and dangers of the Electromagnetic spectrum **Topic**: C7 Organic chemistry **Key concepts:** Alkenes and alkanes Fractional Distillation Polymers	**Paper 1 mock revision** **Topic**: P8 Space (Triple only) **Key concepts**: Life cycle of a star Solar systems and the universe Red-shift	**Topic**: B7 Ecology **Key concepts**: Food chains and webs Interdependence Sampling Biotic and Abiotic factors Carbon cycle and water cycle Adaptations Maintaining biodiversity Impact of Global warming on ecosystems **Topic**: C9 Chemistry of the Atmosphere **Key concepts**: Earth's current atmosphere and the early atmosphere Water Cycle Carbon cycle Climate change and the greenhouse effect **Topic**: C10 Using Resources **Key concepts**: Earth's resources Potable water Life cycle assessments	**Revision**	**GCSE Examinations**	

			Reducing, reusing and recycling		
Yr 11 Combined Science	**Topic**: B7 Ecology **Key concepts**: Food chains and webs Interdependence Sampling Biotic and Abiotic factors Carbon cycle and water cycle Adaptations Biodiversity and maintaining biodiversity Impact of Global warming on ecosystems **Paper 1 mock revision**	**Paper 1 mock revision** **Topic**: C9 Chemistry of the Atmosphere **Key concepts**: Earth's current atmosphere and the early atmosphere Water Cycle Carbon cycle Climate change and the greenhouse effect **Topic**: C10 Using Resources **Key concepts**: Earth's resources Potable water Life cycle assessments Reducing, reusing and recycling	**Revision**	**Revision**	**GCSE Examinations**