

Sackville School Science Curriculum - Year 7



TERM	WHAT? (Is delivered?)	WHY? (Is this important?)	WHY NOW? (Why is this taught now?)	IMPACT? (What is the impact at the end of this half term?)	ASSESSMENT
Aut	Topics - B1: Cells C1: The Particle Model P1: Energy	- Pedagogical Rationale: Establishes core scientific principles necessary for advanced study, building directly upon Key Stage 2. - Establishes the three main pillars of science. Cells form the structural basis of all biology. Particles explain the state of all matter. Energy dictates how physical systems interact.	- Sequencing Justification: Positioned at the start of the year to level the field early and systematically close student subject gaps. - This content therefore addresses disparate primary science teaching by standardising knowledge. It bridges Key Stage 2 gaps and creates an equal baseline for all pupils. - It provides the foundation necessary for further learning to take place as these are core scientific ideas	- Conceptual Mastery: Pupils understand that all living organisms are built from cells and can describe how particles behave in solids, liquids, and gases. - Skill Acquisition: Pupils transition from everyday primary descriptions to using formal scientific terminology (e.g., chloroplast, kinetic energy, density). - Cognitive Shift: Pupils move away from viewing science as separate facts, recognizing that energy transfers drive the physical changes seen in particle models. - Equity & Inclusion: The initial achievement gap between pupils from different primary school backgrounds closes, creating a shared academic vocabulary across the entire cohort.	Within each topic: Knowledge check(s) Application check at the end of each topic
Spr	Topics - (From Aut) and B2: Skeletal and Muscular Organisation C2: Atoms, Elements and Compounds P2: Speed	- Pedagogical Rationale: Introduces advanced structural concepts that build directly upon prior Autumn knowledge. - Shifts pupils from basic models to systems and interactions. Pupils must understand structural biology to grasp human health. They need chemical classification to comprehend material properties. They must learn speed to quantify physical motion	Sequencing Justification: capitalises and expands upon prior learning. B2 scales up B1 cell theory into macro-organism systems. C2 breaks down C1 continuous particles into discrete chemical building blocks. P2 applies P1 energy concepts to visible movement	- Conceptual Mastery: Pupils can distinguish between physical mixtures and chemical compounds, and explain how muscles and bones interact to cause movement. - Skill Acquisition: Pupils confidently read basic chemical symbols from the Periodic Table and calculate speed using standard mathematical formulas. - Cognitive Shift: Pupils connect microscopic structures to macroscopic observations, understanding that invisible chemical bonds create the tangible materials around them. - Interdisciplinary Links: Pupils directly apply their mathematics skills (such as rearranging equations and using standard units) to solve physics problems.	Within each topic: Knowledge check(s) Application check at the end of each topic

Sum 1	Topics - (From Spr) and C3: Pure and Impure Substances P3: Forces Skills recap (experimental methodology and analysis)	• Pedagogical Rationale: Synthesises elements into materials and explicitly links speed concepts to physical forces • Explores how the physical world changes and reacts. Materials in nature are rarely pure, requiring analytical separation skills.	• Sequencing Justification: Positioned as concepts benefit from prior learning in other topics, which are referred to explicitly within new subject material. • Synthesises prior learning. C3 uses C1 states of matter and C2 compound theory to isolate substances. P3 provides the mathematical and physical causes behind the P2 speed effects observed in Spring.	• Conceptual Mastery: Pupils can identify how balanced and unbalanced forces change an object's motion, and explain the difference between pure elements and impure solutions. • Skill Acquisition: Pupils select and justify the correct filtration, evaporation, or chromatography techniques needed to separate a variety of mixtures. • Cognitive Shift: Pupils recognize that motion is not passive; objects only accelerate, decelerate, or change direction because a net force has acted upon them. • Data Literacy: Pupils interpret complex scientific graphs, using force-extension data or heating curves to draw logical, evidence-based conclusions.	Within each topic: Knowledge check(s) Application check at the end of each topic
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Links to Gatsby Benchmarks:

Within each topic, a career information sheet is provided along with interpretation questions. This contextualises every topic covered with a suitable career that uses the concepts covered in that topic directly or indirectly. This increases student awareness of the potential careers available to them, but also provides information on what the career entails. Students are encouraged to ask further questions or explore more independently if they are interested and directed towards Unifrog/other online resources to find out more about entry criteria for these roles.

Biology careers

Cytopathologist, Physiotherapist

Chemistry careers

Chemical engineer, analytical chemist

Physics careers

Particle physicist, renewable energy consultant, air traffic controller, structural engineer

Links to L4L Curriculum:

Respectful Relationships 2

B1 (Cells): Universal cellular structure of all humans. Reinforces basic scientific equality—every human is built from the same biological components.

Mental Wellbeing 2

B2 (Skeletal & Muscular): Physical mechanics of exercise, showing how muscle tissue adaptations demand regular skeletal loading.

Physical Health and Fitness 1

B2 (Skeletal & Muscular): Factual structural benefits of biomechanical load on building peak bone density and muscular contraction strength.

Healthy Eating 1

B2 (Skeletal & Muscular): Need for specific structural minerals/vitamins (Calcium and Vitamin D) to prevent skeletal disease.

Health protection and prevention, understanding the health care system 5

B1 (Cells): Direct differentiation between structural pathogens (unicellular bacteria vs. non-cellular viral envelopes).