Rugeley John Taylor School

B: Subject Curriculum Overview

Subject: Science **Year Group:** 7 **Updated:** Jan-26

Subject Intent

Year 7 Science at Rugeley John Taylor School provides a high-quality science education that develops both scientific knowledge and conceptual understanding through the distinct disciplines of biology, chemistry, and physics. This foundation is the platform on which all future scientific learning is built. Students are empowered through a carefully sequenced curriculum that interleaves key concepts and uses regular retrieval practice to strengthen memory and deepen understanding over time.

Throughout the curriculum, students also develop a secure understanding of the nature, processes, and methods of science by engaging in a wide range of purposeful practical work and scientific enquiries. These experiences help them explore and answer meaningful questions about the world around them, while building confidence in working scientifically—through planning investigations, analysing data, and drawing evidence-based conclusions.

By equipping students with the scientific knowledge and skills necessary to understand the uses and implications of science today and in the future, the curriculum reflects our core belief: students are powered by knowledge and driven by ambition. They are challenged to think critically, act responsibly, and approach science with curiosity and determination—developing not only as successful learners, but as the scientists of tomorrow.

Cross Curricular Links

Geography - Earth Structure & Universe - Plate tectonics, rock formation, Earth layers
PE - Muscles, joints and bones working in sporting activities, investigating organ systems
Art / DT - Use of chromatography in forensic or textile design, modelling various abstract concepts through physical concrete models

KS2 Links

Y5 - Living things and their habitats
Y5 - Forces
Y6 - Properties and Changes of Materials
Y6 - Animals including humans
Y3,5,6 - Rocks, Earth and Space, Evolution and Inheritance

RISE Links

SMSC: Students develop curiosity, moral awareness, and teamwork through scientific enquiry—exploring topics such as human reproduction, variation, sustainability, and practical investigations that promote reflection, responsibility, and collaboration.

British Values: The curriculum reinforces democracy, the rule of law, individual liberty, and mutual respect by emphasising safe working practices, evidence-based decision-making, respectful discussion of scientific ideas, and appreciation of diversity through the study of variation and inheritance.

Rise above others: Students build resilience, independence, scholarship, and empathy by applying the scientific method, working independently with scientific equipment and data, engaging with challenging concepts, and considering the impact of lifestyle and environmental choices on others.

Literacy Links

Guided reading is embedded into every unit and focuses on contextual science in the wider world
The curriculum is rich with high quality text to expose learners to new language, with key vocabulary explicitly taught and defined
FASE reading used in class to expose students to reading high quality text and key words every lesson

Numeracy Links

Data handling for variation, speed and energy calculations. Practical procedures for collecting data
Graph interpretation (distance time, cooling curves)
Algebraic manipulation of formulae (e.g speed = distance / time)
Measurement skills and SI units (mass, length, temperature)

STEM Links

Engineering Design & Material Science - seperation techniques used in real-world engineering and manufacturing processes
Mechanical Engineering - Energy transfers and motion and links to designing vehicles, rollercoasters, or renewable energy systems
Data Science & Computational Thinking - using data to introduce basic computational thinking for graphing, modelling speed, calculations

	HT1	HT2	HT3	HT4	HT5	HT6
Topic	A1. How Science Works B1. Variation & Human Reporoduction	P1. Speed & Gravity	B2. Movement & Cells	C1. Particle Model & Seperating Techniques	P2. Energy Costs & Transfers	C2. Earth Structure & Universe P3. Heating & Cooling
Key Themes / Questions	How do scientists answer questions about the world around us? What makes us different? How do humans reproduce?	How do resultant forces change the physical world around us?	How do organisms move? What are the building blocks of all living organisms?	What is all matter made up of? What are pure and impure substances? What are mixtures? Can you have a pure mixture?	How can energy transfers be more efficient to reduce overall energy costs? What happens to energy stores?	What is the Earth? Where do we fit in the Universe?

Indicative Content	The Scientific Method Evaluate and mitigate risks Accuracy, precision, repeatability, precision Ask questions to develop a line of enquiry Make predictions using knowledge and understanding Select, plan and carry out tests to identify variables Reproduction in humans Structure of the male and female reproductive systems The Menstrual Cycle Reproduction in humans Function of the male and remale reproductive systems The effect of maternal lifestyle on the foetus Variation between individuals of the same species How variation occurs from inheritance and environmental Darwin's theory of natural selection is survival of the fittest Naming organisms bases on their genus and species name	Forces as pushes or pulls, arising from the interaction between two subjects Using force arrows in diagrams Non-contact forces Opposing forces and equilibrium Atmospheric pressure Pressure in liquids Floating and sinking Speed = Distance / Time Distance-Time Graphs Relative motion: trains and cars passing one another	Using a light microscope The functions of the cell wall, cell membrane, cytoplasm, nucleus, vacuole, mitochondria, and chloroplasts Comparing plant and animal cells Diffusion in the movement of materials in and between cells Structural adaptations of some unicellular organisms The hierarchical organisation of multicellular organisms The structure and functions of the human skeleton Biomechanics - the interaction between skeleton and muscles The function of muscles and examples of antagonistic muscles	The properties of the different states of matter (solid, liquid and gas) in terms of the particle model, including gas pressure Changes of state in terms of the particle model The concept of a pure substance Mixtures including dissolving Diffusion in terms of particle model Simple techniques for separating mixtures: filtration, evaporation, distillation and chromatography The identification of pure substances	Energy stores and transfers Energy and energy from foods Electrical costs Using energy efficiently Power stations and the national grid Transferring energy between stores Doing work and how enegry is transferred Energy Resources Renewable and non-renewable energy resources	The structure of the Earth The rock cycle and the formation of igneous, sedimentary and metamorphic rocks Gravity force Weight = mass x graviational field strength The field strength varies on other planets and stars Our sun is a star The seasons and the Earth's tilt, day length at different times of year, in different hemispheres The light year as a unit of astronomical distance Arrangement of particles in solids, liquids and gases Changes of state Heating and thermal equilibrium Temperature difference between two objects Energy transfer from the hotter to the cooler one, through conduction, convection and radiation Reducing energy transfer from houses by insulation The effect of thermal energy on the volume of an object
Asssessment	End of Topic Knoweldge Recall Assessments	End of Topic Knoweldge Recall Assessments	End of Topic Knoweldge Recall Assessments	End of Topic Knoweldge Recall Assessments	End of Topic Knoweldge Recall Assessments	End of Topic Knoweldge Recall Assessments
			Mid Year Assessment Point		JTMAT Aligned End of Y7 Assessment	