
















Science Curriculum Rationale

	Intent	Implementation	Impact
 <p>Curriculum</p>	<p>The school follows an adapted Science programme of study (using materials from STRATA: Science to Raise and Track Achievement- SEN project) as this provides a comprehensive range of activities that are both age appropriate and sufficient to meet the needs of the whole ability range for pupils.</p> <p>The Science curriculum also offers a range of enrichment opportunities i.e. STEM projects, Science week, ECO schools, outdoor learning projects and visits.</p> <p>The units of work delivered, provide practical, first-hand experiences designed to inspire and engage learners.</p> <p>Rosehill have 6 pathways which have been designed to ensure pupils have received a varied and engaging input over time that is age appropriate, even when they remain in the same cognitive pathway, to ensure that skills and knowledge are consolidated and new learning is acquired which links to Discovery Curriculum, Explorers Curriculum and Investigators Pathway.</p>	 <p>Pedagogical Approaches</p> <p>Continuous provision and outdoor learning in EYFS enable children to use a range of discovery and exploration techniques to show inquisitive and curiosity skills.</p> <p>A cycle of progressive lessons are put together through a scientific enquiry-based approach: i.e. experiments, observations, recording findings and projects throughout Key Stage 1-3. At Key Stage 4 and 5, accredited courses are delivered as well as through work related learning incorporating risk assessments and ensuring life skills are enhanced.</p> <p>The role of the teacher is to introduce key skills, materials, experiments and projects safely, facilitating pupils to take their own risks and experiment with ideas through exploration, comparisons, observations and recording findings to make evaluations and begin to show predictions.</p> <p>Specific challenges are implemented to include and ensure key skills are applied.</p>	 <p>Approach to Assessment</p> <p>The approach to assessment incorporates findings of observations and ongoing teacher formative and summative assessments to ensure children are keeping up with the curriculum and their understanding is enhanced and developed.</p> <p>Success criteria for projects will be established and measured throughout the process and through pupil engagement (impact reports). A range of assessment to be used, including learning walks, observations, work scrutiny, monitoring of the learning environment, questionnaires and feedback, case studies, impact reports and evidence of learning i.e. photos and through teacher lesson plans.</p>
 <p>End Points</p>	<p>Through our strong focus on hands-on practical learning, pupils develop a sense of curiosity and exploration about the world around them, by the end of Key Stage 1.</p> <p>Pupils are able to work scientifically and engage in experiments that help them understand the world we live in through a basic understanding of physics, biology and chemistry, within a variety of contexts by the end of Key Stage 2 (i.e. developing their skills within observing and comparing).</p> <p>Pupils will be able to work scientifically through practical investigations developing theoretical understanding by the end of Key Stage 3.</p> <p>Through LIVE, Careers, AQA, ASDAN, work-related learning and Princes Trust, which includes opportunities to explore and research at varying levels to inform their understanding, pupils are able to use scientific skills in daily living activities and complete functional tasks more independently i.e. cooking, by the end of Key Stages 4-5.</p>	 <p>Teachers' Knowledge</p> <p>Subject specific professional development takes place as part of staff training and CPD meeting time.</p> <p>The subject leader will access specialists' networks i.e. NST subject leaders' network and research i.e. STRATA materials, Science through stories (see links below).</p>	 <p>Performance Data & Pupil Progress</p> <p>The school tracks data through the Earwig Assessment Scheme which links in to Pathways and EHCP targets. Pupils are tracked to ensure they are working within the curriculum expectations for their Pathway (Impact reports and curriculum examples).</p> <p>The skills and attributes pupils develop will benefit them through into adulthood; i.e. working with others productively, using observations skills, predicting, estimating, measuring, comparing, increasing independence, exploring and understanding the world around us. Experimenting, observing and through curiosity and interest will lead to development of life skills to support the pupils with confidence, persistence and independence.</p>

 <p>Sequencing</p>	<p>Our Science curriculum is a spiral curriculum (cross-curricula) which has been carefully sequenced to provide progression through the domains of biology, chemistry and physics.</p> <p>Through a scientific enquiry-based approach; high quality activities with repetition to practice the skills they need to master as well as to truly understand the topic, pupils develop their understanding of how the 'small' ideas they have previously mastered develop into 'bigger' ideas. This is all part of their journey towards an being able to use scientific skills in daily living activities and understanding of the wider world, by the end of KS5.</p>	 <p>Enabling Environment & Pupil Voice</p>	<p>Science is taught through projects in key stage to promote learning in different contexts. Teachers promote discussion and opportunities for questioning about the focus of Science (both practically and through theoretical learning) to apply their learning and enhance their understanding and retention of key skills and language already understood. Pupil voice/ feedback is promoted through discussion and questioning which enables learners to contribute to the school and local community i.e. Eco Schools. Adapted resources and books (i.e. interactive books) are used which enable the pupils to manipulate materials and resources.</p>	 <p>Pupils' Work</p>	<p>Photographs, recordings, diagrams and predictions, feedback from pupils and teachers alongside project work captures pupils learning and progress. Additionally, pupil work is displayed in communal areas and classrooms as well as in their learning folders.</p>
 <p>The Need of all Pupils</p>	<p>We recognise that children come to us with different amounts of knowledge, attitudes, skills and experiences and use scientific enquiry-based learning, alongside regular opportunities for hands on practice to help children to think about their surroundings and make them aware that they can solve problems, and develop their functional skills. Additional skills are gained through activities such as trips and science visitors.</p> <p>Science contributes significantly to pupils' enjoyment and understanding of the world and their place within it. This awareness is to extend as far as the pupil is able, from being aware of themselves and their immediate environment through to an appreciation of the natural and man-made world within Science. The range of experiences and achievements will contribute to the enrichment of their lives, according to individual needs, abilities, and aptitudes.</p>	 <p>Knowing More and Remembering More</p>	<p>Throughout each unit of work, teachers will revisit, embed and assess learning through questioning and feedback on learning so far. Specialist resources and areas such as the Woodland Walk, art studio and Courtyard are used. Also, through multi-sensory approaches, including ICT i.e. visual, tactile, auditory and kinaesthetic approaches e.g. videos of a life cycle, sensory stories, Zoolab workshops. Pupils learn to be inquisitive through these hands-on activities and experiments, and enjoy using their senses to engage positively within lessons and activities. Key scientific terminology and vocabulary is taught in context to all pupils. Displays and celebrations of pupil's work provides a platform for revisiting and embedding learning.</p>	 <p>Talking to Pupils</p>	<p>The subject leader talks to pupils about their learning as part of the monitoring process to ensure that learning is being taken place and allow pupils to have their own voice and show their understanding. Science week and special events, i.e. Eco Schools and Outdoor Learning, offer further opportunities towards building independent and problem-solving skills, as this 'enrichment' allows pupils to work more holistically with their peers, practitioners and specialists, and to approach bigger problems creatively, applying their knowledge from across the curriculum areas. Pupils have the opportunity to share feedback about their work and understanding of the lessons. Their responses will be used to inform teaching and cross-curricular plans.</p>
		 <p>Assessment</p>	<p>Assessment questions throughout lessons are provided by teachers relating to summative and formative assessments. This incorporates and deepens the knowledge already learnt. Science projects and impact reports evidence progression of skills (see Earwig). Pupils are encouraged to approach problems creatively and in a range of ways, applying their knowledge from across the curriculum areas, more independently.</p>		

<https://www.stem.org.uk/resources/collection/3038/strata-schemes>

<https://autismclassroomresources.com/teaching-science-special-education-classroom/>