



Science

Intent

At Greenside, we are dedicated to providing high-quality science education in biology, chemistry and physics. Recognising the transformative impact of science on our world, we ensure that all pupils learn essential scientific knowledge, methods, processes and applications.

Our curriculum is taught through the programme Developing Experts, where pupils are encouraged to be inquisitive throughout their time at school and beyond, fostering a deep understanding of foundational concepts and empowering pupils with the ability to provide rational explanations. We inspire curiosity about natural phenomena, encouraging exploration, questioning and critical thinking. This prepares pupils to use science effectively to explain, predict and analyse, equipping them to contribute innovatively to society.

Additionally, we believe that hands-on experimentation and practical application are essential components of learning science. We use our garden as an integrated learning space, where our pupils can learn about the natural world through practical application. By engaging in a range of practical activities, pupils not only reinforce theoretical knowledge but also develop critical skills such as problem-solving, teamwork and resilience. These skills are invaluable for their future academic and professional pursuits, fostering a lifelong appreciation for the wonders of scientific inquiry.

The Developing Experts (DE) curriculum is designed to meet the statutory requirements of the National Curriculum while incorporating insights from industry experts, who connect lesson topics to potential careers in STEAM. Each unit and lesson has clear learning intentions with differentiated outcomes, ensuring that lessons are accessible at various levels for all pupils. These outcomes are outlined in lesson plans, with activities that encourage frequent recaps of prior learning. Expert films are integrated into lessons, demonstrating real-world applications of the knowledge being taught and showcasing career opportunities. The curriculum is structured to build new knowledge upon prior learning, with recall questions embedded throughout to reinforce understanding. To support greater depth thinking, every lesson includes a challenge task and resources, such as transcripts, and read-out text options are available to assist diverse learning needs.



At Greenside we know that, within the context of SEND, personalisation of the curriculum is key so that each individual's priorities can be considered in order to prepare them adequately for adulthood with the best possible quality of life. Our ambitious curriculum can be successfully adapted to meet the needs of pupils with SEND, developing their knowledge, skills and abilities to apply what they know with increasing fluency and independence. We believe that it is vital that our pupils are equipped with the tools needed to become independent, inquisitive learners in all subjects and that pupils with SEND achieve the very best outcome and reach their full potential.

Implementation

At Greenside our science curriculum begins in the EYFS. Science in EYFS is taught through understanding of the world, by providing children with the opportunities and tools to explore their environment. Pupils are indirectly predicting, problem solving, observing, making decisions and thinking about the world around them through carefully planned activities. Science in EYFS is fundamentally based on pupils' curiosities and interests which encourages them to explore and develop their own scientific knowledge and understanding. From year 1 onwards, we teach science weekly through the curriculum Developing Experts.

Teachers are supported with high-quality documents and resources designed to guide them through lessons effectively. Lesson plans provide a step-by-step structure, ensuring teachers have all the necessary information before teaching. Mission Assignment videos offer thorough explanations of core tasks, supporting those who benefit from visual demonstrations. For units requiring more in-depth knowledge, subject mastery documents are provided, highlighting potential misconceptions so teachers can address them proactively.

Various resources, including lesson presentations, Mission Assignment videos, and subject mastery documents, aid teachers in presenting subject matter that appeals to different learning styles. These presentations integrate Assessment for Learning (AfL) opportunities to assess pupils' prior knowledge and understanding, enabling teachers to address misconceptions during lessons. Discussion is encouraged throughout presentations and tasks, ensuring pupils understand how scientific concepts interrelate. For example, a Year 5 lesson on Earth and Space revisits concepts like light and non-light sources while learning about the Moon. Supporting documents, such as Knowledge Organisers, and before-and-after tests or rocket word quizzes, help assess understanding and identify conceptual gaps.



Rocket Thinking activities promote open-ended discussions, encouraging higher-order thinking and allowing teachers to assess learners' comprehension. These activities are strategically placed to optimise engagement, whether as starters, main activities, or plenaries, to evaluate prior knowledge and misconceptions. DE's curriculum is carefully sequenced, building on prior learning and establishing links between different topics and year groups, from basic concepts in Year 1 to more complex ideas in Year 6 and beyond into KS3. Varied methods of presenting new knowledge—text, images, videos, games, quizzes, and experiments—help pupils retain concepts in the long term.

Research shows that open-ended discussions, like those in Rocket Thinking activities, help learners retain knowledge and understand real-world applications of scientific principles. The curriculum offers various assessment methods, including unit tests, AfL slides in presentations, and quizzes on the pupil dashboard. These assessments are engaging and provide teachers with valuable insights without creating undue workload.

Collaborations with industry experts ensure that students see the real-world relevance of science through expert films. The curriculum also encourages reading and vocabulary development through activities like rocket word quizzes, word searches and knowledge organisers, all designed to engage pupils and enhance their learning experience.

Staff attend science specific CPD sessions to ensure the subject knowledge and pedagogy around science is secure and all staff are assessing children in the same way. Teachers also use Reachout CPD to develop their own subject knowledge for specific topics they will be covering.

Impact

- There is an increased amount of pupil participation in Science lessons
- Pupils' presentation of their work reflects their strong attitudes to learning
- Pupils will be able to use increasingly sophisticated vocabulary in discussions to deepen their knowledge and understanding and remedy their misconceptions in science
- Pupils will leave primary school being able to make links with the science they have been taught and their local environment
- Pupils are curious and have developed skills to work scientifically and investigate in science lessons
- Pupils have learnt about and can recall famous scientists that they have studied throughout their primary school career



- High quality learning environments support pupils' understanding in science
- Teachers plan well sequenced science lessons and are clear about their choices for the curriculum that they teach
- Teachers have a good subject knowledge for science
- Teachers' judgments in science are accurate