Rationale

As stated in The National Curriculum for Science (2014):

"A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave and analyse causes".

Intent

At Our Lady of Grace, our aim is to fulfil the requirements of the National Curriculum through a high-quality, broad and balanced science curriculum that ensures the progressive development of scientific concepts, knowledge and skills. Through our science curriculum delivery, our intention is to provide high quality teaching and learning experiences that:

Encourage pupils to be curious about the world around them.

Prepare pupils for life in an increasingly scientific and technological world today and in the future.

Enable pupils to acquire a growing understanding of the nature, processes and methods of scientific ideas.

Relate scientific knowledge to real world scenarios and careers.

Encourage scientific discussion and the application of new scientific vocabulary.

Encourage a scientific approach to problems, with opportunities to develop working scientifically skills, whilst participating in a range of practical investigations.

Implementation

We have devised a science curriculum that is progressive throughout the whole school, starting with strong foundations for future scientific learning within our Early Years Foundation Stage classes. Activities and experiences are carefully planned within the learning area of 'Understanding the World', whereby children develop new vocabulary and begin to make sense of their physical world.

From Key Stage 1, our curriculum is based upon the 2014 Primary National Curriculum in England: science programmes of study, which provides a broad framework and outlines the knowledge and skills that should be taught in each Key Stage.

The units of work for each year group outlined within the science National Curriculum, is taught within a one year rolling programme. This ensures progression between year groups and guarantees that all content is covered. The order of the science content for each year group has been carefully considered to allow pupils to apply and build upon their previous knowledge and experiences appropriately. Science is taught consistently, once a week through discrete and specific units and lessons. Pupils revisit and build upon previous knowledge to support them to know and remember more within the science curriculum through poignant and paced recap.

There are ample opportunities to develop oracy within lessons through careful questioning, paired discussion, choral reading as well as opportunities discussion-based activities, such as 'Explorify' and 'Concept Cartoons'.

At Our Lady of Grace, we have high aspirations and plan for all pupils to achieve in science through the implementation of 'Adaptive Teaching' strategies. Teachers use high quality resources and equipment to create engaging lessons that suit the needs of their pupils.

They have access to CLEAPSS Health and Safety guidance to support the safe planning of practical lessons and set clear expectations so that pupils know how to work safely. Pupils have consistent opportunities to work scientifically and investigate scientific questions using the five enquiry types, represented by symbols. These support pupils to recognise the enquiry type and skills that they are using within the lesson.

Our science curriculum is planned to develop the science capital of pupils. Through Forest School, pupils have opportunities to explore their outdoor environment and locality, thus providing real experiences linked to their learning. Regular opportunities for external visitors, trips, workshops and after school clubs are also planned to enrich the science curriculum. Pupils learn about a diverse range of scientists and links are made to STEM related careers within each unit, encouraging high aspirations and informing pupils of the future career paths available to them in the future. We also work closely with the Secondary School within our Collegiate to ensure that our pupils are additionally prepared and have experiences that give them an insight into the next phase of their science learning journey.

Impact

The measure and impact of our curriculum is to ensure that pupils not only acquire the appropriate age-related knowledge covered within the statutory science curriculum, but a depth of understanding of the content explored also a range of skills that they can apply to their everyday lives.

As a result of the science curriculum, pupils will have:

- • A wider variety of skills linked to both scientific knowledge and scientific enquiry skills.
- • A richer vocabulary, which will enable them to articulate their understanding of taught concepts.
- • An understanding that science has relevance to our everyday lives and can lead to a wide range of career paths for all.
- High aspirations, which will see them through to further study, work and a successful adult life.

We measure the impact of our curriculum through the following methods:

Regular assessment:

- • Formative assessment activities and live marking within lessons. This enables misconceptions to be instantly identified and addressed. Teachers also recognise concepts that may need to be revisited within the next lesson.
- • Summative assessment through key questions at the end of each unit utilising Microsoft Forms. This information can be used by the Subject Leader to evaluate progress and by the next class teacher.
- • The implementation of Teacher Assessment of Primary Science (TAPS) plans, as outlined within a progressive whole school plan. This allows teachers to assess pupil's Working Scientifically Skills.

Provision for Pupils with Special Educational Needs and Disabilities (SEND)

At Our Lady of Grace, we are committed to ensuring that all pupils, including those with SEND, are enabled to access and succeed in a rich and ambitious science curriculum. Our approach is informed by the latest guidance from the Education Endowment Foundation and Department for Education particularly with regard to high-quality, inclusive teaching and adaptive practice.

High Expectations for All

We believe that every child is a scientist and hold high expectations for all learners. Science lessons are designed to ensure pupils with SEND:

- Access the full curriculum through appropriate adaptations and scaffolds.
- Develop their knowledge and skills over time through a clear progression model.
- Experience success and build confidence as scientists.

Key Principles from Research

We implement the five evidence-informed strategies for SEND learners outlined by the EEF (2022), ensuring these are embedded in all science lessons:

1. Explicit Instruction – Concepts are taught in small steps with clear modelling and worked examples.
2. Cognitive and Metacognitive Strategies – Pupils are supported in how to plan, monitor and evaluate their learning using structured prompts, visual organisers, and talk routines.
3. Scaffolding – Tasks are carefully broken down. Support is gradually removed as pupils gain confidence.
4. Flexible Grouping – Pupils work in varied groupings to promote peer support while maintaining access to high-quality discussion.
5. Use of Technology – Where appropriate, pupils with SEND use assistive technology (e.g. text-to-speech tools, digital quizzes, visual dictionaries) to support access and engagement.

Adaptive Teaching in Science

Teachers make adaptive decisions within lessons to respond to individual need without creating a separate curriculum. This includes:

- Pre-teaching key vocabulary and concepts using visuals and dual coding.
- Providing accessible reading materials, including simplified texts and voiceover resources.
- Using physical prompts, real-life objects, or multi-sensory approaches where helpful.
- Offering sentence stems and structured talk frames to support scientific dialogue.
- Modelling how to record ideas in varied formats (diagrams, bullet points, oral reports).

We also draw on the 'assess-plan-do-review' cycle for pupils with SEND, ensuring that science learning is monitored and adjusted appropriately, in collaboration with the SENCO and wider team.

Working Scientifically for All

All pupils, including those with SEND, are given the opportunity to develop their working scientifically skills. They are supported to:

- Ask and explore their own questions.
- Make predictions and observations using scaffolded resources.
- Engage in practical science safely, with adapted equipment if needed (e.g. larger tools, magnifiers).
- Present their findings through varied media.

Professional Collaboration and CPD

Science staff work closely with the SENCO to review provision, co-plan support, and ensure that teaching strategies are inclusive and evidence-based. All staff receive ongoing CPD in:

- Adaptive teaching strategies.
- Using assessment to inform support.
- Supporting communication and interaction needs in science.

Role: Science Subject Leader
Policy Date: November 2024
To be reviewed: September 2025