Intent for Science

Learning, Growing And Living with Jesus

At St Anthony's Catholic Primary School, we are driven by a moral purpose and clear Gospel values that ensures every child has the right to outstanding teaching. It is our vision that we deliver a curriculum which is based on the National Curriculum, underpinned by respect and stewardship of God's world which will become part of every child's learning experience. It is our ambition to empower our children to have naturally inquisitive minds; develop a natural lifelong curiosity of God's world around them and to become Scientists as learners with an environmental awareness and understanding of sustainability.

The Science curriculum is planned and sequenced so that new knowledge and skills build on what has been learnt before, with a clear framework of progression to ensure a smooth transition that builds towards clearly identified endpoints. The Science lessons taught will develop substantive and disciplinary knowledge so children are secure and can achieve end of outcomes with a depth of understanding to apply to the real-life situation. Our children will thus leave primary education with in-depth scientific knowledge and skills and impact they themselves can have on the world around them.

Implementation

Throughout the Science curriculum, there is a constant thread of being able to work scientifically with scientific vocabulary, which is built on over time, so children use it with familiarity, accuracy and precision.

Science is taught consistently, once a week for up to one and a half hour. It is also taught discretely in many different contexts throughout all areas of the curriculum including Forest school which exposes children to the wider world around them. Each year carefully selects a writing piece based on their science topic that allows enhancement of key learning with extended writing opportunity.

As part of the science enrichment and cultural capital opportunities, there are assemblies, workshops, trips and experience days organised to give hands on experience for the topic covered and to explore possible career opportunities within the field. This is to empower children to see the relevance of what they are learning, instil love of science and to raise the science profile of the school.

There is a huge focus on retrieval practice at the start of each lesson to transfer the key ideas and information into long term memory. As children progress through the year groups, they build on their skills in working scientifically and scientific knowledge. Knowledge Organisers, used actively in class, outlines the key scientific disciplinary knowledge, conceptual knowledge and the vocabulary for each topic, so that all children have an appropriate level of support. Activities and tasks are effectively scaffolded with the support of widget and substitution table to ensure the learning is accessible by all.

Each topic starts with a Big Question, which a child answers based on their prior knowledge without any input. The lessons are taught in sequence with retrieval practice, variable scientific enquiry and skills opportunities, addressing misconceptions, application of key learning, and research based on the key scientists. At the end of the topic, an assessment piece is used to determine understanding of the topic and the opportunity to revisit the big Question to showcase the progression and consolidation of their learning.

To measure progress, teachers integrate a combination of formative assessment (gathered during discussions, questioning, resourced activities, paired and independent tasks) and summative assessment carried out at the end of each topic. Statements are updated on SIMS and this is used to inform half termly assessment that can accurately record attainment and gaps in learning. At the end of an academic year, GL assessment for science is carried out to give a reliable insight of knowledge and skills progression as a whole. Having a Trust affiliation with secondary schools, there is a clear pathway of progression in place to year 7, which involves visits and upscaling of skills in upper KS2.

The `Statutory Framework for the Early Years Foundation Stage` and the non-statutory guidance of `Development Matters' provides the long-term planning in EYFS. To support further, the teachers have access to Forest School and the wide range of resources from our science cupboard to assist them with their lesson planning and delivery. The resources in the science cupboard are reviewed on a yearly basis.

Teachers also have a pathway of progression and are directed to Reach Out CPDs to brush up on their subject knowledge, discover great practical activities and hone their science teaching skills. In addition, specialist CPDs are delivered to help with the understanding of the structure, layout and key scientific focus so that there is consistency in expectation of outcome. There is termly monitoring to ensure high quality teaching is put into practice; pupils' and teachers' voice to feedback and the opportunity for staff members to share their ideas.

Impact

Progress is measured through a child's ability to know more, remember more and explain more. The impact and measure of this is to ensure children not only acquire and retain the appropriate age-related knowledge linked to the science curriculum, but also skills which equip them to progress from their starting points, and within their everyday lives. All children will have:

- A secure acquisition of scientific knowledge and skills to enable a smooth progression to secondary school.
- Their misconceptions identified and addressed.
- The scientific concepts and application well consolidated and cognitive recall strengthened.
- A richer consistent vocabulary which will enable to articulate their understanding of taught concepts.
- High aspirations, which will see them through to further study, work and a successful adult life.
- Access to the GARDENS approach to shape a more representative curriculum and well-rounded understanding of key figures that continue to shape science.
- Enriched and immersive experiences through trips, events, workshops and enable them to see future career opportunities within science.
- Respect and guardianship of God's world.

Pupils talk enthusiastically about science, and this is evident in the conversations they have with teachers, with each other and pupil's voice data.

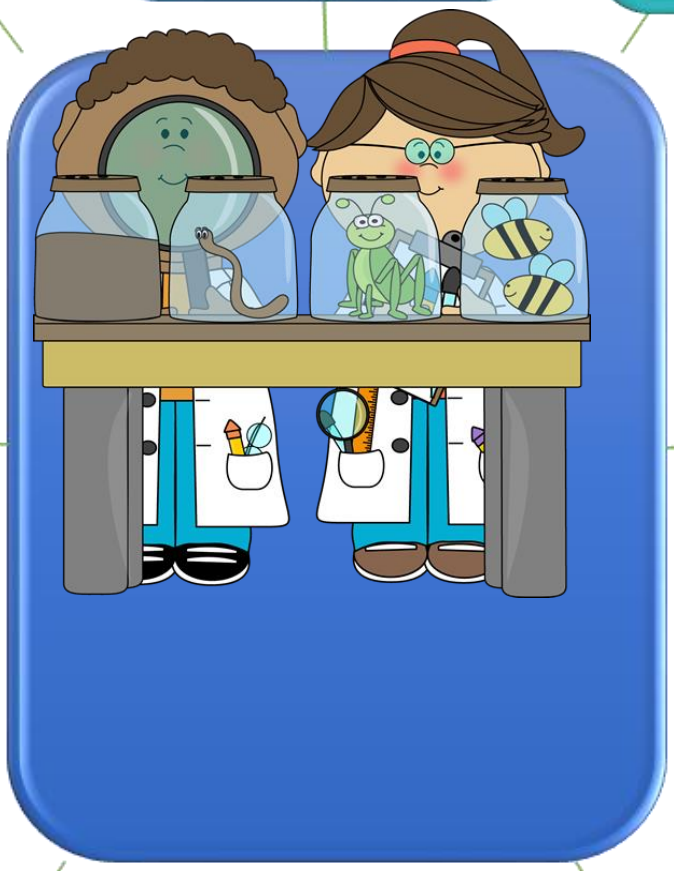
The Principles of Science will become part of every Science lesson and be shared by all. These principles may be displayed in the form of posters or in children's books.

As scientists:

We will explore the exciting ways our world works

We listen to others but can discuss and challenge our ideas.

We can use scientific vocabulary



We are curious and not afraid of taking risks or asking questions

We can share with others what we already know.

We can choose how we will record our exploring and present what we find in a variety of ways

We will look at and discuss what our results mean. Analyse, interpret and evaluate.