The intent, implementation and impact statement for the delivery of the Science Curriculum
Our Vision for Emmanuel

To create a welcoming Christian community where every child is viewed as a special person created and loved by God. Every member of our school community is valued for who they are and empowered to be the best they can be. We support every child to develop into lifelong learners who are resilient, socially skilled, and successful in all aspects of their lives.

'Start children off on the way they should go, and even when they are old they will not turn from it.' (Proverbs 22:6)

At Emmanuel, we provide an ambitious curriculum, challenging all children to aspire to be the 'best they can be'. All children learn in a highly inclusive environment which engages them to achieve great outcomes and reach their potential. We provide the children with a broad and balanced curriculum where the substantive and disciplinary knowledge the children need to acquire is coherently planned and sequenced allowing knowledge to be built on and embedded. Due to the careful sequencing of the curriculum, the children use their prior knowledge to allow them to learn new concepts. This curriculum design, supports all children to be courageous when faced with new challenges.

As Paul said in his letter to the Philippians 'I can do all things through him who strengthens me.' (Philippians 4:13 ESV)

Emmanuel's curriculum intent for Science

Our intent aims to ensure that all pupils:

1.Develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics.

2.Develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them.

3.Are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

This reflects the disciplinary knowledge set out in the national curriculum (2013) for Science.

Our intent is to ensure that all pupils gain success against the composites (end points/final outcomes) set out in the national curriculum to enable them to be secondary ready and flourish in their next step of their Science education.

The implementation of our Science Curriculum

Our Curriculum

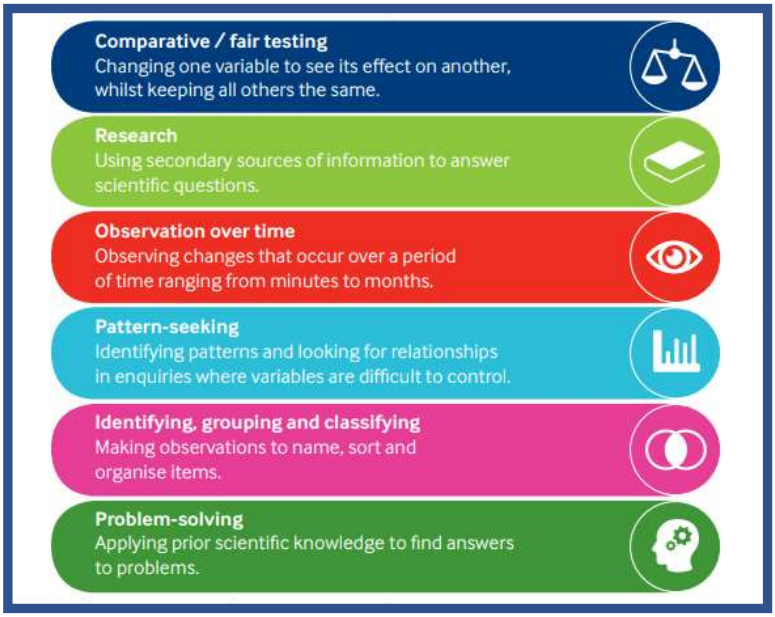
Lessons are planned using progression documents for knowledge, skills and vocabulary, alongside the Active Learn 'Science Bug' schemes of work. This ensures that all topics are covered and enables progression through the year groups. Children have weekly Science lessons, with teachers following the scheme of work, but adapting lessons where necessary to suit the needs of their class.

The following topics are taught through Key stage 2:

Year group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 3	Rocks and Soils	Movement and Feeding	Forces and Magnets	Light and Shadows	Parts of a Plant	What plants need
Year 4	Human Nutrition	Electricity	Sound	Changing State	Classifying Living Things	Dangers to living Things
Year 5	Earth and Space	Forces	Separating Mixtures	Types of change	Life cycles	Materials
Year 6	Evolution and Inheritance	Classifying living things and their habitats	Our bodies	Light and Sight	Light and Sight	Changing circuits
Discipline	Physics		Chemistry		Biology	

Teachers understand the sequence of learning in Science and use this to assess prior learning and further extend children's understanding and their scientific skills. At the start of each topic, children are given opportunities to explain or revisit their previous learning. They then move on to posing their own questions about the topic as a way of encouraging their curiosity and developing their scientific enquiry skills. At the end of a topic, children revisit their initial piece, demonstrating what they have learned during the unit.

In addition to the scientific knowledge and conceptual understanding taught through each unit, children will also be provided with opportunities to develop their scientific enquiry skills. These skills are identified within the 'Working Scientifically' element of the National Curriculum and are covered within the Science Bug planning scheme, through a range of activities. In addition, teachers refer to the Primary Science Teaching Trust materials to ensure a range of enquiry types are covered and the children are encouraged to consider the most appropriate enquiry type to answer each question. The enquiry types covered are:



Teaching

Our teachers focus on teaching simply, practicing thoroughly, feeding back constructively and embodying excellence. The teaching strategies employed across school are used to facilitate the pupils to know and remember more.

Science Provision	
Individual lessons	Our Science lessons follow a structure of retrieval and review of prior knowledge leading to the teaching of new content through carefully sequenced precise small steps. Children are

	provided with the opportunity to practice what they have learnt and apply their knowledge to a different context. • At the beginning of each lesson, teachers plan opportunities for pupils to recall prior learning. This enables pupils to consolidate their previous learning, while also preparing them for future learning, in line with the sequence of lessons. This is particularly important for our SEND children, who may need more opportunities to retain and embed scientific vocabulary and concepts. • Teachers encourage children to use a developing scientific vocabulary as they progress through each year group. Time is spent during lessons introducing and reinforcing age-appropriate scientific vocabulary. Children are given opportunities to consolidate their use of scientific vocabulary as they move through the year groups. They are encouraged and supported to use scientific vocabulary, both written and verbal, to explain their ideas and make sense of their observations and findings.
Inclusive science provision	We have an ambitious Science curriculum which is highly inclusive and supports all children to gain success and reach their potential. All new learning is based on the substantive and disciplinary knowledge stated in the science progression document and due to the spiralised nature of the curriculum where component parts are revisited, all new knowledge builds on prior knowledge in a coherent fashion allowing all children to access the curriculum.

Assessment

The accurate assessment of children's science knowledge is critical to ensure all children have the required factual background knowledge needed to access the next component identified in our progression documentation. We use assessment tools to accurately identify gaps in pupil knowledge to ensure that precise support is provided to enable all children to gain mastery over each scientific concept.

Assessment for learning: assessing as we teach by observing and questioning to inform next steps needed for each pupil to make progress against the learning objective.

Assessment as learning: we use ongoing assessment strategies such as retrieval practice and generative learning activities to consolidate learning and help children deepen knowledge in the long term memory.

Assessment of learning: we carry out a pre-assessment of children's background knowledge to accurately plan a series of lessons taking into account the children's starting points. Teachers also carry out end of unit assessments and key investigations to identify any gaps in the children's understanding.

To support in the assessment process we regularly revisit the questions:

What is your prediction? What do you predict?

How will you make sure your measurements are precise and accurate?

What are your conclusions? What is your evidence?

Can you give an oral presentation of...?

Can you give a written display/presentation of...?

How could you have improved precision and accuracy?

What evidence have you found to support or refute the idea that...?

Desired Impact of our Science curriculum

The desired impact of our science curriculum is that all pupils acquire the substantive and disciplinary knowledge set out in our science progression documents so children's learning is built on sequentially and coherently across the year groups. Through this careful scaffolding of learning, the children's knowledge will be built on to ensure they attain the end of Key Stage 2 composites set out in the national curriculum.