St Francis' Catholic Primary School, Goosnargh

Curriculum Intent, Implementation and Impact

St. Francis' Catholic Primary School

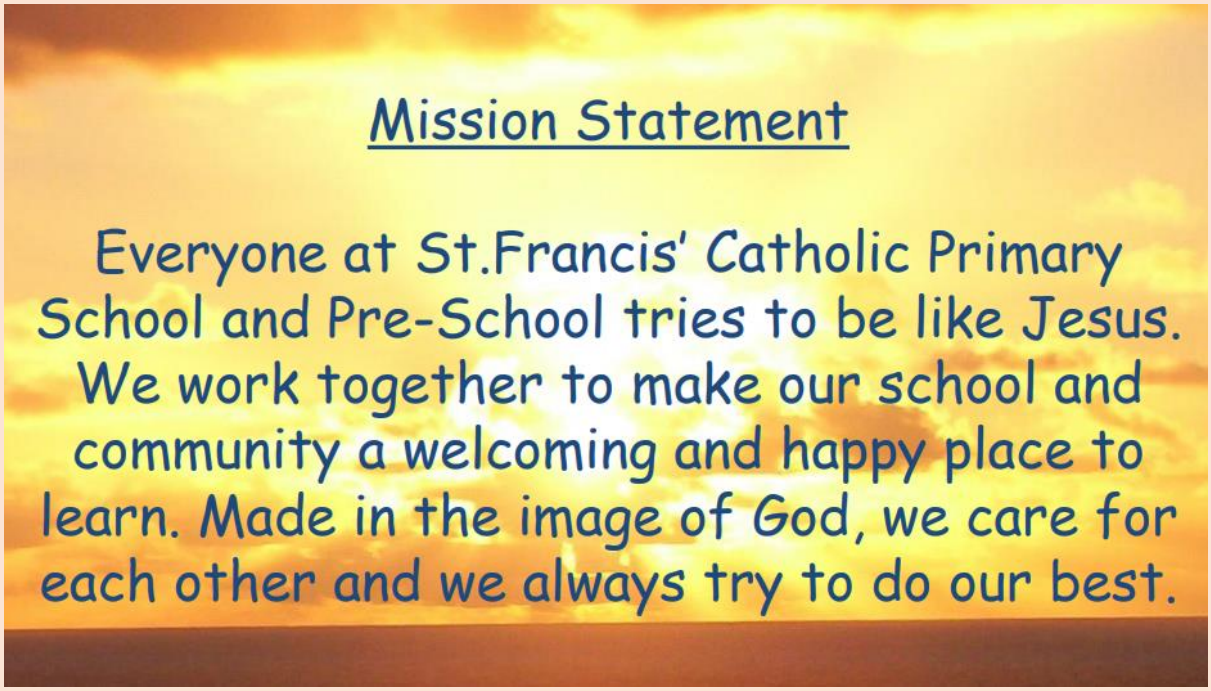
LIVING FEELING DREAMING

Living our life as Jesus taught us Feeling the Gospel Values Dreaming of bright futures for all

As children of God, we care for each other and we always try to do our best'

SCIENCE

At St.Francis' Catholic Primary School the curriculum encompasses our Mission Statement:



Intent

Science provides the foundation for understanding the world around us. Engaging children's natural curiosity, imagination and excitement; science enables children to explore, learn and make sense of the world they live in.

Our creative science curriculum will enable children to gain positive attitudes towards scientific knowledge and investigative processes; to understand both the uses and implications of science today, and in the future.

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 children 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 will be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

A strong focus on developing knowledge alongside scientific skills across biology, chemistry and physics is within our curriculum.

The scheme encourages:

● A strong focus on developing knowledge alongside scientific skills across biology, chemistry and physics.
● Curiosity and excitement about familiar and unknown observations.
● Challenging misconceptions and demystifying truths.
● Continuous progression by building on practical and investigative skills across all units.
● Critical thinking, with the ability to ask perceptive questions and explain and analyse evidence.
● Development of scientific literacy using wide-ranging, specialist vocabulary.

Aims

The national curriculum for science aims to ensure that all pupils:

- develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- 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
- are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

Our school curriculum is underpinned by our Mission Statement. In particular, it is based on the following principles:

Pupil individuality and worth

We believe that each person is a unique creation of a loving God and has been endowed with particular gifts to be developed and used for the service of others.
We believe that all pupils should have full access to the curriculum regardless of sex, race, religion, culture or special educational needs and disability.

Breadth, balance and creativity

The aim of our curriculum is for children to be genuinely interested in what is being taught, for all to be motivated and fully access well sequenced lessons that are engaging and accessible, yet ambitious for all.

We believe that all pupils are entitled to a broad balanced and creative curriculum, experiencing a wide range of activities in order to appreciate and better understand themselves and the world in which they live.

Children acquire knowledge through a range of different subjects and experiences which prepares them as future citizens. Our children are intellectually developed and in addition to curriculum knowledge, long term memory is built through interconnections of ideas, concepts and skills across all subjects. We have high ambition for all of our children.

Continuity and progression

We believe that all our pupils should enjoy the maximum benefit from continuity of learning and planned progression both within the school and on transfer to another school.

Kapow Primary's Science scheme of work supports pupils in meeting the Early Learning Goals for Understanding the world (The Natural world) and the end of key stage attainment targets set out in the National curriculum.

Relevance and adaptability

In all of our subjects, we have reflected upon what it means for us to have high expectations and ambition for all. One size does not fit all and we are responsive to all learners in school.

Quality first teaching means that children's needs will be met through inclusive and effective teaching. By creating an emotionally supportive environment, breaking down complex content, sequencing learning within lessons, reducing distraction, rephrasing questions, intervening at the right time, providing the right support, providing the right resources and using effective teaching and learning strategies.

We believe the curriculum should be adapted to meet the needs, aspirations and interests of pupils and prepare them for the demands of a changing society and contribute to its development for the common good. The curriculum should also relate to their level of maturity and provide for enjoyment and fulfilment.

Implementation

Planning the curriculum

Teachers plan the Science curriculum according to the agreed programme which ensures that the children experience a wide range of knowledge and skills throughout each Key

Stage as stated in the National Curriculum. Due to mixed age classes, we have yearly cycles which are planned to support sequential learning, supporting children to know more and remember more. We use KAPOW to enhance our curriculum.

In EYFS (Reception), pupils build a solid foundation for science before transitioning to Key stage 1. Through hands-on exploration and focused observations, lessons spark curiosity and foster an early appreciation for the natural environment, paving the way for more structured scientific learning in Key stage 1.

We have developed our own planning format for each unit of work to identify the knowledge to be taught and learnt, the skills to be developed and the links with other curriculum areas to be promoted.

We begin each topic with a focus on 'LIVING, FEELING, DREAMING' LIVING our lives as Jesus taught us, FEELING the Gospel values and DREAMING of bright futures for all. We begin with Big thinking questions and we have an exciting topic 'launch'to engage our children and bring learning to life.

Professional development opportunities (individual and whole school) are provided for teachers to further develop subject knowledge and expertise.

Progression - The teaching and learning of knowledge and skills

Kapow Primary's Science scheme is a spiral curriculum, with essential knowledge and skills revisited with increasing complexity, allowing pupils to revise and build on their previous learning. A range of engaging recall activities promotes frequent pupil reflection on prior learning, ensuring new learning is approached with confidence. The Science in action strand is interwoven throughout the scheme to make the concepts and skills relevant to pupils and inspiring for future application. Cross-curricular links are included throughout each unit, allowing pupils to make connections and apply their science skills to other areas of learning.

Each unit is based on one of the key science disciplines: biology, chemistry and physics. The National curriculum content has been grouped into six key areas of science to show progression throughout the school: Plants. Animals, including humans. Living things and habitats. Materials. Energy. Forces, Earth and space.

Pupils explore knowledge and conceptual understanding through engaging activities and an introduction to relevant, specialist vocabulary. As suggested in Ofsted research review: science (April 2021), the Working scientifically skills are integrated with conceptual understanding rather than taught discretely to provide frequent but relevant opportunities for developing scientific enquiry skills. The scheme utilises practical activities that aid in the progression of individual skills and provide opportunities for full investigations.

There is an agreed plan for the continual progression of the teaching and learning of knowledge and skills to be developed in the children.

Adaptive Teaching

All children learn in different ways and at different speeds. Adaptive teaching begins by having the same learning intentions for all pupils without lowering expectations. In order for all children to achieve these learning intentions it will be necessary to adapt teaching.

In Science, lesson adaptations may include:

- assessment of prior learning and adapting lessons to meet the needs of all children
-maintain an inclusive environment based on mutual trust and respect
-for recording – alternatives to written recording are offered, eg drawing, scribing, word processing, mind maps, digital images, video, voice recording
-Self-assessment and peer assessment are encouraged. Pupils are taught to use the language of assessment, eg "better…"
-providing specific materials and tools for sensory processing
-bespoke visual aids
-supporting children physically when undertaking fieldwork activities through size of resources
" time to think about questions before being required to respond
STEM sentences/sentence starters
-talk tins and voice recording equipment
-labelled diagrams
-WAGOLLS
-cloze procedure tasks
-Praise positive behaviour at each step to encourage high self-esteem.
-Ensure clear instructions are given throughout the lesson.
-Provide time limited learning breaks.
-Ensure step by step instructions are given, so each child knows what part of the lesson they are working on. (For example, the design, the creation or the evaluation)
-Provide additional time for pupils to express their ideas before the lesson with a pre-teach where appropriate
-children responding to Science work in the way of our 'scrapbook' creative approach to promote personalized learning and individual worth
-Provide children with extra-large pieces of paper to work on.
-Make sure resources are well organised and not cluttered.
-Ensure the child is positioned in a well-lit space before beginning an activity.
-precise and explicit modelling of tasks
-extra repetition when learning a new skill
-pre-teaching or earlier encounters with concepts
-teacher intervention to address gaps or misconceptions
-the use of appropriate vocabulary at varying levels of difficulty during lessons
-careful use of support for pupils with English as an additional language
-dual coding with key vocabulary and pictures
-simplifying language
-discussions with children, alongside their work (teacher knowledge)
-flexible working groups
-regular opportunities to revisit previously taught knowledge
-different colour paper/overlays/background on the whiteboard
-provide a prompt

Consolidation

The knowledge the children have gained in a unit of work is constantly revisited to reinforce learning such as at the beginning of a new unit of work. This is to ensure that the knowledge is embedded and retained to inform and link with new units of learning. The teaching of skills are consolidated with each new unit of learning.

Challenge

Opportunities for extension activities are built into the teaching of a unit of learning according to the age and ability of the children in order to provide stretch and challenge and greater understanding for all learners.

Enrichment

Opportunities for a wider understanding of the curriculum are incorporated into the planning of a unit of learning. This may include extension opportunities, such as research, and other activities such as visits to local places of interest.

By the time children leave our school, they will have access to a well-rounded curriculum with excellent curriculum experiences to:

- Raise money for charity
- Take part in a young enterprise initiative
- Take part in national theme weeks
- Visit an art gallery
- Dress up
- Watch a pantomime
- Experience a residential outdoor education visit
- Learn to play a musical instrument
- Learn to speak Spanish with National Curriculum requirements
- Visit a museum
- Visit a farm
- Write a story and send it to an author
- Write a poem and send it to a poet
- Participate in sporting competitions and enrichment opportunities
- Learn to swim
- Perform in a school drama production
- Visit a contrasting place of worship
- Link with other schools and attend community events
- Experience reflective theme days and awareness days
- Enjoy free forest schools activities
- Be a buddy to younger children in school
- Engage in a STEM project
- Enjoy gardening
- Bake for a purpose
- Organise and lead children leading children initiatives such as lunchtime clubs
- Take part in a music competition with other schools
- Learn how to be kind
- Be ready for our world

Continuity

Teaching and learning links with many other areas of the curriculum to support the whole development of the children as stated in our mission for the school.

Assessment

Each unit of work taught and learnt is assessed by the teachers to determine what learning has taken place. This assessment takes a variety of forms (talking to children, quizzes, testing) and is assessed against the knowledge to be gained as stated on the Knowledge planning format. These assessments will inform future planning and provision.

The Subject Leader will discuss the provision of the teaching in the school with the teachers (staff meetings) and quality assure provision through other monitoring strategies such as book looks, talking to children, moderation of work and cluster meetings. The Subject Leader will ensure that an Improvement Plan is developed which evaluates current provision and prioritises actions for future.

Impact

They will have the necessary tools to confidently and meaningfully question and explore the world around them and critically and analytically experience and observe phenomena. Pupils will understand the significance and impact of science on society.

By the time children are ready to progress to Key Stage 3, our children will:

● Develop early scientific thinking skills through hands-on exploration and sensory experiences in EYFS (Reception).
● Develop a body of foundational knowledge for the biology topics in the National curriculum: Plants; Animals, including humans; Living things and their habitats; and Evolution and inheritance.
● Develop a body of foundational knowledge for the chemistry topics in the National curriculum: Everyday materials; Uses of everyday materials; Properties and changes of materials; States of matter; and Rocks.
● Develop a body of foundational knowledge for the physics topics in the National curriculum: Seasonal changes; Forces and magnets; Sound; Light; Electricity; and Earth and space.
● Evaluate and identify the methods that 'real world' scientists use to develop and answer scientific questions.
● Identify and use equipment effectively to accurately gather, measure and record data.
● Be able to display and convey data in a variety of ways, including graphs.
● Analyse data to identify, classify, group and find patterns.
● Use evidence to formulate explanations and conclusions.
● Demonstrate scientific literacy through presenting concepts and communicating ideas using scientific vocabulary.
● Understand the importance of resilience and a growth mindset, particularly in reference to scientific enquiry.
● Meet the end of key stage expectations outlined in the National curriculum for science.

We are able to monitor and evaluate the impact of teaching through our embedded self-evaluation procedures. This will enable us to know if the curriculum is successful or not. These procedures include curriculum review in staff meetings, book looks, ongoing assessment, reinforcement of knowledge before a new unit of learning, talking to children and professional development opportunities. These procedures enable us to review provision in order to ensure that the curriculum meets the needs of the pupils as stated in our intent.

The information gleaned from these strategies will provide the future action for the annual Improvement Plan in order to improve teaching and learning further.

Our children achieve highly and they enjoy a broad curriculum. They speak joyfully about what they have learnt and remembered.