## Intent
**(From the National Curriculum)**

It is our intention in Science to develop in all young people a lifelong curiosity and interest in the sciences. When planning for the science curriculum, we intend for children to have the opportunity, wherever possible, to learn through varied systematic investigations, leading to them being equipped for life to ask and answer scientific questions about the world around them. We aim to motivate and inspire the children through interesting and exciting opportunities to explore science both in the classroom and in the outdoor environment As children progress through the year groups, they build on their skills in working scientifically, as well as on their scientific knowledge, as they develop greater independence in planning and carrying out fair and comparative tests to answer a range of scientific questions. We provide our children with wider opportunities in science and make links, wherever possible, to other subjects. We endeavour to ensure that the Science curriculum we provide will give children the confidence and motivation to continue to further develop their skills into the next stage of their education and life experiences.

## Mission Statement

***At English Martyrs' we provide a stimulating, varied education which challenges all to achieve, encouraging everyone to live in the spirit of Jesus. As part of the wider community we will work towards success.***

- To provide a curriculum which is varied, stimulating and challenging for all children.
- To provide a richly stimulating learning environment
- To prepare children for their future, ensuring all meet their full potential through academic excellence and strong personal values.
- To develop strong links with home, the parish and the wider community.
- To create a culture of learning where children are motivated to develop lively, enquiring minds.
- To encourage the personal, social, moral, spiritual and cultural development of children within the context of the Catholic ethos, whilst nurturing a respect and understanding of other cultures and beliefs.
- To provide a welcoming, caring and safe environment which enriches the spirit.

## Intent Key Science Concepts Developed over Time

Beginning in EYFS, we build upon children's interests and natural curiosity, laying the foundations for further study within the discipline of Science across school, aiming to instil in children a sense of awe and wonder for the world around them.

From Y1—Y6, we then use the National Curriculum as a basis to continue to focus on key learning through each topic across the disciplines of Biology, Chemistry and Physics.

## Vision

Through the study of Science, children will develop their understanding of the world through the specific disciplines of biology, chemistry, and physics. They will have the opportunity to develop the knowledge, methods, processes and uses of science; they will be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They will develop an understanding of how science can be used to explain what is occurring, predict how things will behave, and analyse causes. They will also learn how science has changed our lives and is vital to the world's future prosperity.

## Early Years

ELG - Understanding the world. - The Discipline of Science Characteristics of Effective Learning.

1.) Engagement - Playing and Exploring.
2.) Motivation - Active Learning.
3.) Thinking - Creative and Critical Thinking.

## Cultural Experiences

Cultural capital is the accumulation of knowledge, behaviours, and skills that a child can draw upon and which demonstrates their cultural awareness, knowledge and competence; it is one of the key ingredients a pupil will draw upon to be successful in society. Through our Science Curriculum we build cultural capital with: Trips and visits to local parks e.g. Taylor Park; visits farms and zoos e.g. Acorn Farm and Knowsley Safari Park; as well as studying our own well established woodland area. Trips to science museums e.g. Manchester Museum of Science and Industry and visitors such as the Starlab and workshops with Adrian Boden also enhance children's learning experiences.

## Science Progression

The acquisition of key scientific knowledge is an integral part of our science lessons. The progression of skills for working scientifically are developed through the year groups and scientific enquiry skills are of key importance within lessons. We encourage our children to 'think like a scientist' by demonstrating a growing understanding of the following progressive areas of disciplinary knowledge:

Working Scientifically Skills:

- Asking simple questions and recognising that they can be answered in different ways.
- Making observation and taking measurements
- Engaging in practical enquiry to answer simple questions.
- Recording and presenting evidence
- Answering questions and concluding
- Evaluating and raising further questions and predictions.

Enquiry Skills:

- observing over time;
- pattern seeking;
- identifying, classifying and grouping;
- comparative and fair testing;
- and researching using secondary sources.

## How We Teach Science


PEDAGOGICAL APPROACH TO TEACHING AND LEARNING (LESSON STRUCTURE)

Each lesson has a clear focus. Scientific knowledge and enquiry skills are developed with increasing depth and challenge as children move through the year groups. Pupils complete investigations and hands-on activities while gaining the scientific knowledge for each topic.

We teach children using strategies including but not limited to 'My Turn, Our Turn, Your Turn' and 'Teach, Task, Teach, Task' strategy to encourage children to 'think harder'

## Staff Development


Collaborative approach to planning and sequencing the curriculum to build progression.

Subject Leaders have access to National College Training prior to developing, reviewing and updating our Curriculum at English Martyrs'.
Subject Leader is part of 'The Challengers Network' and meet to disseminate good practice.
Staff training using Mary Myatt subscription to Subject Leaders film and webinars.
Science Association Resources to aid the development of subject knowledge.

## Assessing Science

Pre/post learning tasks and key vocabulary. Retrieval based learning techniques in every lesson with tasks designed to reveal knowledge and understanding per topic. Exit tasks could be; quizzes, knowledge tasks and must evidence key learning.

Final judgement as (WTS) working towards standard, (EXP) expected or (WAS) working above standard each year.

Master Learning Recap Strategy to deepen learning and long term memory.


Subject monitoring and next steps provided using whole school 'Tell Me Time' strategy.

## Meeting the Needs of All Scientists.

The planning that we use allows children to improve their own metacognition and access the lesson at their level. Children are encouraged to deepen their own understanding with use of vocabulary mats for pupil support. Pupils are given additional support within lessons dependent on their individual needs. Mind maps are completed pre topic to determine what knowledge is already in place. This knowledge is then built upon to enable the children require to progress to the next stage of their learning.

## Impact of the Science Curriculum

The impact of our science Curriculum is that: Children are engaged within Science learning and curious to discover, learn and remember more. Work is of a high quality, demonstrating how pupils are acquiring knowledge, skills and vocabulary in an appropriate sequence. Pupil's work demonstrates that Science is taught at an age- appropriate standard across each year group with opportunities planned in to engage all pupils. Children are able to 'Think like a Scientist. Independence is developing when working scientifically with children selecting their own tools and materials, completing pupil led investigations and choosing their own strategies for recording. Learners are becoming more articulate. Children have a wider understanding of the impact of science all around us and within our lives. They explore and have an insight in to the wide variety of Science careers available.