



**R = Encourage Resilience and Perseverance**



**A = Develop Articulate Learners.**



**I = Influence Aspirations**



**N = Nurture Curiosity**



**B = Instil British and Christian Values**



**O = Provide Opportunities to build upon knowledge and skills**



**W = Wellbeing and Health**



## INTENT STATEMENT

The intention of our Science curriculum is for all of our children to develop an age-appropriate understanding of the knowledge, methods, processes and uses of Science, through the specific disciplines of biology, chemistry and physics. Understanding 'The Bigger Scientific Picture' of their learning will allow our children to develop their own understanding of the impact of Science upon the world around them and answer deepening scientific questions—comprehending that this has implications both today and in the future.

Our bespoke curriculum design, promotes children's natural curiosity and excitement of Science with a rich variety of experiences and observations, tailored to the meet the needs of our learners. As children progress through school, they will become more proficient in different types of scientific enquiry, applying their growing knowledge to work scientifically through our knowledge-enabled approach. With rich links to reading and employment in Scientific industries, science capital can be developed while promote positive attitudes to STEM, thus influencing aspirations for future study and employment.



## INTENT - CURRICULUM SEQUENCED AND KEY CONTENT PRIORITISED

Use of National Curriculum as a basis with statutory content mapped out on bespoke knowledge planners. This is delivered through a *minimum* of one and half hours discrete Science teaching every week throughout school. Starting in EYFS laying the foundations for Scientific learning, five units per year group each span 7 weeks to ensure depth and breadth of coverage. Teaching sequence is fully explained on 'Science Unit Structure—Implementation Documentation'.

A Unit Structure Summary (7-week unit of work unless a double unit where it is 14 weeks)						
Week 1 (Part A & B) Practical Pre-learning: Pre-Learning Vocabulary: The Bigger Scientific Picture.	Week 2 QUEST Lesson.	Week 3 QUEST Lesson.	Week 4 QUEST Lesson.	Week 5 QUEST Lesson.	Week 6 QUEST Lesson.	Week 7 Exit Task Completion: Post-Learning Vocabulary
One carefully chosen high-quality core unit text will be used throughout the unit (at the teacher's discretion) to enhance delivery and build Science Capital						

Independent learning is encouraged throughout where misconceptions are embraced and used as essential teaching points. Promoting scientific enquiry at the core, built into every lesson, with use of skills progression papers across year groups. Aspirational knowledge is also carefully considered across topics, building systematically on previous topics containing overarching transferable concepts which run throughout all topics.

Our Science curriculum aims to develop 'Science Capital', as a measure of children's engagement or relationship with science, how much they value it and whether they feel it is 'for them' and connected to their life.



## VISION

**Deepen children's understanding** of the world in which we live and to be **naturally curious** of how things are made around them and how things change over time. We want to create a real sense of **awe** and **wonder** in children's learning of Science.

Begin to develop their **science capital** (the science-related knowledge, attitudes, experiences and resources that an individual builds up through their life) and understand the life-long opportunities that Scientific learning can provide through STEM opportunities.



## EYFS AS THE 'BEDROCK'

ELG - Understanding the World.

Our Natural World - The Discipline of Science.

Characteristics of Effective Learning.

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

Detail of our five learning enquiries provided within EYFS knowledge planner.



## CULTURAL CAPITAL

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 through:

Children learning about areas of significant scientific interest such as biology, chemistry and physics and understand the impact of Science all around them.

Children being fully immersed in scientific enquiry throughout the school, thinking like a Scientist within each lesson delivered.

Development of Science Capital (through taking part in a STEM Ambassador programme and exploring the wide variety of Science careers available).



## READING AS THE BEATING HEART

Science Reading Spine.

Reading around the subject with books from the schools library service and Reading is STEMsational programme.

Link English texts.

Use of CGP books.

Vital vocabulary.

STEM themed weeks based upon books.

Science Magazines delivered to KS2.



## CURRICULUM PROGRESSION

The curriculum has been planned to systemically include both the statutory working scientifically strands from the National Curriculum and the five core areas of scientific enquiry, alongside core knowledge. Mapped out on individual knowledge planners.

Strands of Scientific Enquiry: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources. Working Scientifically Skills: sort/group/compare/classify/identify/research/modelling/recording/questioning/planning/using equipment/communicating/communication/collaboration.

We have three transferrable concepts (the disciplines of Chemistry, Physics and Biology), each of which have big ideas, that span across our whole school Science curriculum.

Chemistry (What everything is made of and how it works).

Physics (Understanding how force, objects and energy all interact. Physical Things).

Biology (The study of living things. Bios is Greek for life).

To see our 12 big ideas, visit our Science long-term plan.



## PEDAGOGICAL APPROACH TO TEACHING AND LEARNING (LESSON STRUCTURE)

- Use of bespoke knowledge organisers and planners for lesson delivery and to support independent home study.

- Teaching and learning supported by Rosenshine's Principles of Instruction (Review, Check for understanding, Provide Models, Provide Scaffolds, Guide practice).

- **QUEST** approach to lesson delivery

*Question to answer.*  
*Understanding previous learning.*  
*Explore new knowledge and vocabulary.*  
*Student practise.*  
*Talk, test, tell.*



## STAFF CPD (LINKED TO GOOD PRACTICE)

Collaborative approach to planning and sequencing the curriculum.

Working Scientifically training (from Liverpool Hope University)

LDST 'STEM' CPD programme and Reading is 'STEMsational' programme.

Online 'Reach out CPD' and Science Teaching Termly Newsletter.

STEM Learning— All reaching staff have completed year group specific CPD throughout this academic year.

LDST networking on Science curriculum, including with 'School Improvement Liverpool' curriculum updates.



## APPROACH TO ASSESSMENT

- Pre/post learning sheets/Vital Vocabulary.

- Retrieval based learning techniques every lesson with three formally evidenced per topic.

- Exit tasks are practical and allow for evidence of scientific enquiry.

- Final judgement as emerging, expected or exceeding per topic, using bespoke assessment statements created from TAF.

- Assessment sheet for books and completion on snapshot by class teacher.

- Report generated termly by subject leader with moderation of judgements.



## MEETING THE NEEDS OF ALL LEARNERS

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 our knowledge organisers for pupil support.

Pupils are given additional support within lessons dependent on their individual needs. Pre-teaching and interventions also take place to support the retention of 'Scientific Knowledge' for all learners.

The 'milestone knowledge' is the pre-determined essential knowledge that children require to progress to the next stage of their learning.



## OUR IMPACT

The Impact of our Science Curriculum is:

Opportunities to build upon knowledge and skills can be clearly evidenced within pre and post learning activities. Progress is clear from all starting points.

High aspirations for all children can be evidenced.

There is a clear developing independence when working scientifically with fewer scaffolds provided.

A wider understanding of the impact of Science all around us and within our lives.

Children are engaged within Science lessons and curious to discover, learn and remember more.

Increased aspirations for further study within the Sciences, developing positive habits for Science Capital amongst all groups of children.



## GOVERNOR COMMUNICATION

Our Link Governor is Father Harry Wood.



## SUBJECT PRIORITIES AND ASSEMENT DATA

Talk to the Subject Leader about their priorities for this year and up-to-date assessment data.