



Quality of Science Education at Lemington Riverside Primary School

INTENT

Our vision for our children as scientists:

At Lemington Riverside Primary School, we recognise that science has and continues to change our lives and is vital to the world's future prosperity. We believe it should be our aim as a society to ensure that future generations continue to pursue further advancements in the field for the betterment of the human race and the planet.

Our students are the future generation, so in order to ensure this continued pursuit, it is our belief that we must:

- Light the spark of curiosity and excitement about natural phenomena within our students and encourage them to recognise the power of rational and empirically backed explanation.
- Equip our students with the key foundational knowledge and concepts of primary science.
- Provide an immersion in the methods, processes and uses of science. By ensuring these three main tenets are met, we aim to create scientifically literate students who progress onto secondary education with the ability to effectively experiment, observe, problem-solve, work collaboratively and think critically.

In doing this, we aim to ensure that further educators are provided with a solid foundation in which to build on so that our children are able to continue realise their full academic potential in the future whether this be in a scientific field or not.

At Lemington Riverside Primary School, we have designed our Science curriculum with the intent that our children will:

- Develop their ability to think independently, critically and analytically about their work and the processes involved in this.
- Become increasingly confident and competent in a full range of practical scientific skills.
- Develop excellent scientific knowledge and understanding which can be demonstrated through written and verbal explanations, solving challenging problems and reporting scientific findings.
- Show high levels of originality, imagination or innovation in the application of their skills.
- Develop a passion for science and its application in past, present and future technologies.





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IMPLEMENTATION

Our Journey:

- In 2019, LRPS began working with a leading science and stem consultant to develop staff pedagogical understanding of exemplary science education and to map out our curriculum offer to ensure proper progression of skills.
- Since the start of our collaboration, staff have attended CPD which have aimed to develop their understanding of different scientific concepts and processes and how to implement these properly within lessons.
- Based on the latest pedagogical research, the '*Lemington Teaching Cycle*' was developed so that staff could optimise learning throughout the teaching journey. The teaching cycle is now implemented within every science lesson across school.
- Knowledge organisers have been re-designed to incorporate science so the attainment of our children can be more accurately tracked.
- Through partnership with a local private school, from September 2021, our children will have the opportunity to work with secondary science specialists in school with the express aim of further developing their excitement and passion for science and stem.

Curriculum Implementation:

The curriculum is implemented through a **thematic** approach revolving around a key question which will enable the children to explore a component of one of the three main scientific disciplines (Biology, Chemistry and Physics). For example, the unit of work may focus on '*Sound*' but answer a specific key question such as '*If a tree falls and there is no one around to hear it, does it still make a sound?*' Children may study the same topic and discipline in another year but address a different question focusing on a different scientific skill and different aspect of knowledge.

The milestones created by Chris Quigley Education are used in conjunction with our thematic planning to ensure the children develop their knowledge and skills as they move from Early Years through to Key Stage 1 and 2. The Milestones are used to monitor coverage and track progress across the curriculum, ensuring appropriate sequencing is in place. When planning teachers incorporate the following intent:

- Intent: What wider skills will the children have developed by the end of this theme, supporting future learning and life skills?

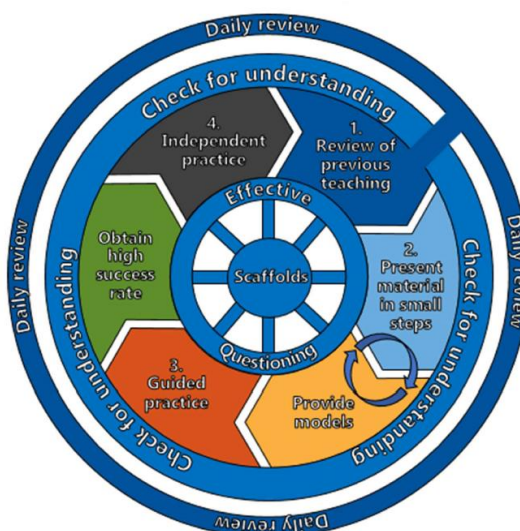


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- Intent: Outline the factual/topical areas that will be covered, enhancing the development of knowledge and cultural capital?
- Intent: What opportunities will there be to develop literacy and numeracy skills?
- Intent: Cross-Curricular links: Which curriculum areas will be covered during this theme, developing cross-curriculum knowledge and skills?
- Impact: What opportunities will be provided to assess the development of knowledge and skills?
- Impact: What specific areas of knowledge/skills will be developed during this theme, which will be assessed at different times by the teacher and by the pupil?
- Impact: What specific wider skills will be developed during this theme, which will be assessed at different times by the teacher and by the pupil?

In a science lesson, you will see:

As a school, we have invested heavily in research into the pedagogical theory that underpins good teaching and learning. In all foundations subjects you will see the 'Lemington Teaching Cycle' being utilised.



- This specific lesson structure has been designed based on the latest pedagogical research. The specific structure is constructed to ensure the transfer of information into the long term memory.
- The use of knowledge organisers are used to aid teachers in planning their knowledge and skills and students in understanding the expectations by the end of the unit.



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| | <p>- Tier 2 and 3 vocabulary is taught within the unit and reinforced throughout the year.</p> <p><i>Following guidance provided by the DfE in 'Development Matters', Early Years focus on guiding our youngest children to make sense of their physical world and their community. This is accomplished by both responding and exploring to their natural curiosities about the world and by sparking curiosity through guided learning experiences.</i></p> |
| IMPACT | <p>We know our children are achieving because...</p> <p><u>By the end of Key Stage 1, most children will be able to:</u></p> <ul style="list-style-type: none">• ask simple questions and recognise that they can be answered in different ways• observe closely, using simple equipment.• perform simple tests.• identify and classify.• use their observations and ideas to suggest answers to questions.• gather and record data to help in answering questions. <p><u>By the end of Key Stage 2, most children will be able to:</u></p> <ul style="list-style-type: none">• plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.• take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.• record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.• use test results to make predictions to set up further comparative and fair tests.• report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations.• identify scientific evidence that has been used to support or refute ideas or arguments. <p><i>For a detailed breakdown of the scientific knowledge that most children will possess by the end of KS1 and KS2 please see the 'Science Curriculum Progression' document.</i></p> |





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If learners need support, we aim to enrich our children's cultural capital through the following methods:

- Our fully-funded, 'Lemington Experience' provides our children with an incredibly unique offer. Every pupil at LRPS will visit key scientific sites, throughout their time at the school, free of charge.
- As a school we have invested heavily in the Lemington experience; we believe firmly that by enriching our children's experiences, we enrich their scientific vocabulary.
- We firmly believe that our children must experience the plethora of STEM learning and experiences that our local area has. Where permitted, we believe that children must experience history rather than 'doing' it.
- Through partnership with a local private school, we aim to further bolster our children's experiences through delivery of 'WOW Science' delivered by secondary science specialists.

