Quality Respect Love Happiness Equality

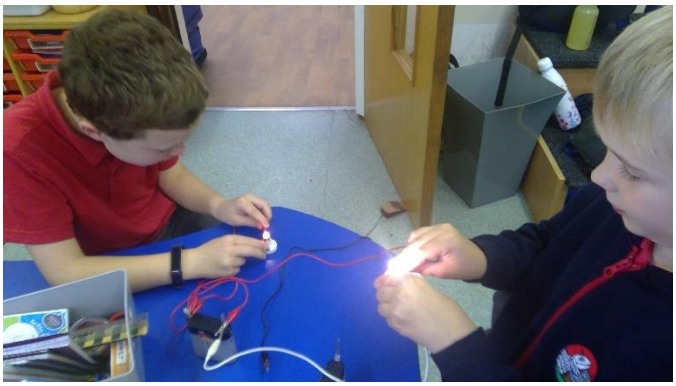
Madley Primary School

'Be the best you can be'

Science at Madley Primary School

Curriculum Statement

The science curriculum in Madley encourages children to develop their curiosity in the world around us. Through investigating, exploring and being hands-on in experimenting, the pupils will learn to pose questions, seek answers and find out how the world operates. This will enthuse pupil to want to find out more and to gain meaning in all that they see around them. This will hopefully lead to an investigative mind-set that they will develop further in their future lives.



Intent:-

What Science looks like in our school:

- Pupil's science experiences are at the forefront of their learning.
- The investigative process is a method for pupils to 'discover' and 'explore' their own learning.
- All pupils have engaging and interesting scientific experiences both inside and outside the classroom.
- All pupils will progress and develop their scientific skills and knowledge as they move through the school years.
- Curiosity is celebrated as a talent.
- Scientific expertise and knowledge is shared through professional visitors and curriculum visits.
- Science work is celebrated and shared in a positive and receptive environment.
- Quality physical and digital resources are available to create and stimulate opportunities.
- All pupils have access and provision to learning that is appropriate for them, including those with special educational needs.
- All lessons have opportunities for discussion and questioning.
- Families are welcomed to share experiences, interests and job links.
- Specific scientific vocabulary is used correctly by pupils and adults.
- Virtual opportunities and work are shared with the wider community.
- Scientific jobs and careers are seen as aspirational and attainable for all pupils.

By the end of EYFS pupils will:

- Have learnt to question, enquire and explore the world around them.
- Have had opportunities to experiment, observe and discover different items of curiosity.
- Start to connect their learning with their own life experiences.

By the end of Key Stage 1 pupils will:

- Have had the opportunities to undertake their own practical scientific investigations.
- Understand that when experiments go wrong, they are celebrated as a learning opportunity and a success.
- Want to independently enhance their own science learning and share their 'science capital' with others.
- Be using specific science vocabulary.
- Have worked in small groups, or with a partner, alongside chances to work independently.
- Have used a range of scientific equipment, alongside other resources such as books, websites and videos.

By the end of Key Stage 2 pupils will:

- Be able to plan, set up, observe and measure, record, interpret and evaluate their own experiments.
- Have made connections between their science work and real world applications.
- Have increased independence and autonomy in conducting their own investigations.
- Increasingly make their own conclusions and interpret their own data, sharing their findings with others.
- Increasingly make informed predictions based on their previous scientific knowledge.
- Be confident in using science specific vocabulary appropriately and in the correct context.

Implementation:-

This is how it works:

- Teaching is high quality and follows and builds upon the progression for the whole school.
- Science learning is a mixture of discovery, research, sharing and through investigational work.
- Pupils are encouraged to 'explore' and find out things for themselves.
- Asking pupils what they already know and what questions they have about the unit of work.
- EYFS work focuses on observations of the children learning about themselves and the world around them, through 'physical development' and 'understanding the world' strands.
- Displaying correct science vocabulary in classrooms and using it correctly in discussions.
- Giving opportunities for group work, partner work and independent work as appropriate.
- Connections are made with local facilities, services and people to share resources and expertise.
- All science resources are high quality, valued and looked after correctly.
- Membership of CLEAPSS and ASE (professional science organisations), to provide up-to-date health and safety guidance alongside quality planning resources and guidance.
- Pupil's work is shared, discussed and displayed for others to see and learn about.
- Science work and news is promoted through the school website, school newsletters and display boards in school.
- Pupils create and review their 'pupil voice' of how they determine good science lessons.
- Each year group follows the progression plans to ensure good coverage across the year and this builds upon the knowledge gained from the previous year.

- Each year group also works on the 6 scientific lines of enquiry every year, to build these key skills with increasing depth, challenge and independence.
- Interesting and exciting equipment is used, backed up by professional and intriguing digital resources, such as 'Twig science', 'Explorify' and 'PSTT'.

<u>This is what adults do:</u>

- Providing quality teaching that identifies pupils needs and how to move them to the next stage.
- Plan engaging and practical lessons that capture pupils curiosity.
- All staff, including L.S.A.'s, engage in regular science specific CPD.
- Reinforce the idea of things going wrong can be a good thing, which can still give important learning.
- Address misconceptions and explain these correctly with correct subject knowledge.
- Demonstrate and act as role models with the scientific process and using equipment.
- Monitor pupil's progress through book scrutinies and learning walks from leaders.
- Use displays that are engaging and interactive, whilst also showing correct vocabulary.

<u>This is how we support:</u>

- Providing appropriate tasks and investigations for their level of pace and understanding.
- Building positive relationships that promote pupils asking for help when needed.
- Pupils work with a small group or partner to support each other.
- Observations and formative assessments are used to quickly identify any misconceptions and misunderstandings, which can then be given additional focus either as a whole class or individually.

<u>This is how we challenge:</u>

- Pupils learn to understand that the scientific process always benefits from more data and further investigation.
- Increased independence is given as appropriate to the individual pupil's progress.
- Additional connected activities are accessible to enhance and consolidate learning.
- Differentiated investigating where appropriate.
- Pupils learning to 'teach' and share their learning with others to deepen their understanding.

This is how we ensure all children can access the curriculum:

- By providing for a variety of different learning styles, such as visual, practical and auditory tasks.
- Pupils work in mixed ability groups, to support each other and learn from each other.
- Pupils with SEND are supported according to their identified individual needs and education plans, such as additional staff support or additional resources.
- Learning is revisited to enable pupils to reflect and remember key knowledge and skills.
- Additional opportunities are given for greater focus on the key vocabulary.

Impact:-

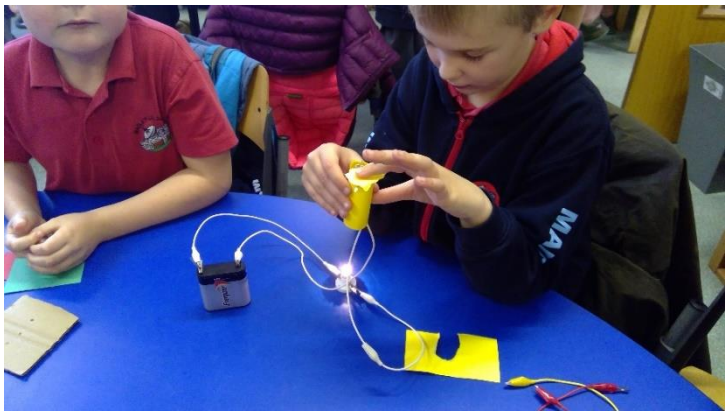
This what you might typically see:

- Pupils are enthusiastic and keen to share their learning with others.
- Pupils show curiosity and ask questions to find out more.
- Pupils are talking about science in different ways and in their own time.
- Pupil's work reflects their level of understanding and shows they take pride in their work.
- Parents, visitors and other school staff will notice and be aware of science activities around school and the interest it is generating.
- A welcoming environment of sharing and celebrating science is garnered that supports pupils, staff, families and visitors to learn and enjoy together.
- Lessons are planned at an appropriate pace and level, supporting children to take the appropriate next steps based on their prior learning and interests.
- Failed outcomes and experiments are regarded as a successful learning opportunity.
- Teachers are knowledgeable, passionate and confident about sharing a love of science learning.
- The school reflects a positive learning and stimulating learning environment for the science curriculum.

This is how we know how well our pupils are doing:

- Pupil's discussions reflect their use of correct scientific vocabulary.
- Pupils are able to work more independently on investigating their own interests.
- Teachers are able to accurately assess where each child is at with their own learning.
- Through discussions, observations and written work, both in and outside of lessons.
- 'Pupil voices' give feedback and ideas.
- Book scrutinies and lesson observations by leaders.

This is the impact of the teaching:



- Pupils are knowledgeable and confident in their scientific understanding.
- Pupils are competent in the different stages of conducting their own experiments accurately and for purpose.
- Knowledge and scientific skills are developed year after year to show progress through school.
- Pupils start to apply their knowledge to the world around them successfully, including unplanned learning situations.
- Pupils develop an analytical and reflective mindset that can be adapted to new situations.
- Pupils have a love of science and are keen to take their own learning further, with aspirations to start a science profession.

Cultural capital:-

Cultural capital can be defined as powerful knowledge. Knowledge that is one of the key ingredients a child will draw upon to be successful in society, their career and the world of work. Cultural capital gives a child power. It helps them achieve goals, become successful, and rise up the social ladder without necessarily having wealth or financial capital. In Science, this powerful knowledge can be split into two categories: powerful subject knowledge and powerful personal knowledge.

Powerful subject knowledge in Science:

- The Science National Curriculum.
- The knowledge of famous scientists from both the past and the present.

- The knowledge of how major scientific breakthroughs have shaped the world and our lives today.
- The knowledge of important scientific discoveries and the impact on society.
- The knowledge of current worldwide issues and how science can impact the future positively.
- The knowledge of staying safe within scientific experiments and in our daily lives.

Powerful personal knowledge in Science:

- Knowing that Science is a diverse profession, that anyone can be part of.
- Knowing that Science is a way in which you can question the world around us.
- Knowing that Science is a way in which you can find out more for yourself, by being curious and investigative.
- Knowing that through scientific approaches, anything can be investigated to learn more about it.
- Learning through experiences at home and in the community to develop personal science capital.
- Sharing Science experiences and learning with one another.