

Curriculum Policy:	Science
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Intent:

At Cleves Primary School, we hold a profound commitment to fostering a deep and lasting love for science in our students. Our science curriculum is designed with three core principles. Our primary aim is to ignite curiosity within each student. We want them to question the world around them, develop a sense of wonder, and cultivate an insatiable appetite for answers. We intend to nurture young minds that are naturally inquisitive and eager to explore. At Cleves Primary School, our science curriculum is meticulously crafted to be systematic and progressive, laying the essential foundations for understanding the world. Through a high-quality science education, our children delve into the marvels of the world through the lenses of Biology, Chemistry, and Physics.

Implementation:

Our curriculum is thoughtfully sequenced to ensure that children progressively build upon their knowledge of natural phenomena, fostering deeper understanding and retention. We prioritise meeting the needs of all our children, including those from disadvantaged backgrounds, by making topics easily accessible and relatable to their everyday experiences. Designed for continual growth, our curriculum emphasises repetition and skill rehearsal, allowing children to develop their scientific understanding over time. Our teachers follow rigorous medium-term plans to ensure consistency and depth in their delivery, empowering children to become independent scientists. Through a range of scientific inquiry methods, including communication, modelling, prediction, measurement, classification, data gathering, comparison, contrast, and observation, our children develop essential scientific skills.

Impact:

Our science education has a significant and lasting impact:

Scientific Literacy: Students develop a strong foundation in scientific concepts, enabling them to make informed decisions and engage with scientific issues in their everyday lives.

Confidence and Curiosity: Students gain confidence in their ability to explore, question, and seek answers. They develop a curiosity that extends beyond the classroom.

Critical Thinking: We nurture critical thinking skills, encouraging students to evaluate evidence, make connections, and draw conclusions based on scientific principles.

Global Awareness: Our students become aware of global scientific challenges, such as climate change and sustainability, and are empowered to contribute positively to solutions.

Future Readiness: Our children are prepared for future careers in science, technology, engineering, and mathematics, with a solid foundation in scientific principles and problem-solving skills.

Equality, Diversity & Inclusion:

All pupils will be given equal access to the entire Science curriculum, including educational visits. By exploring topics in biology, physics, and chemistry, we cultivate children's scientific knowledge and conceptual understanding, preparing them to be informed and curious citizens of the world. Where required, pupils with SEND will be provided with additional support in order to fully engage with the curriculum. Where it is inappropriate for a pupil to participate in a specific lesson because of reasons related to any protected characteristics, the lesson will be adapted to meet the pupil's needs and alternative arrangements involving extra support will be provided where necessary. Our school has a vision for a curriculum that is diverse, encompasses a global context and is historically adept. Pupils at Cleves are consistently developing skills which enable them to succeed in a diverse world.

In our science lessons, we aim for all students to develop essential scientific skills, including:

- Predicting
- Observing
- Classifying
- Comparing
- Contrasting
- Creating models
- Gathering data
- Measurement
- Effective communication of findings

At Cleves, we run a mastery curriculum however we use the national curriculum for History as the basis for our curriculum planning. This means that all curriculum topics are developed in a progressive manner, with pupils building on past knowledge through the implementation of clear and unambiguous composite goals. Children learn and recall more through repetition, resulting in a thorough and secure understanding of the important components. Cleves strives to provide extraordinary lessons in which all children are expected to reach learning objectives and attain mastery. We realise that there are children with varying creative ability in all courses, and we provide appropriate pathways for all children to attain the learning aim.

These pathways include:

- Adaption
- Support
- Deepening Understanding
- Lowest 20% Toolkit

Adaption: is the altering or changing of the task so it is accessible for SEND children. The adaption of task should take into consideration the learning objective, stage of historical learning the child is at and barriers to learning a child may encounter.

Support: Support is any resource which may assist a pupil in achieving the learning objective. This may take the form of assistance from an adult (teacher or teacher or teaching assistant), a modelled example of what is needed to succeed in the lesson, textbooks, artefacts, photographs, guest speakers and field trips, to enhance pupils' learning experiences and bring history to life.

Deepening Understanding: To further enhance pupil's learning, children are encouraged to complete a task or a question related to the lesson to deepen their understanding; making connections to the present; to develop critical thinking skills using the knowledge and skills they have acquired during the lesson.

Lowest 20% toolkit: These are strategies aimed at the lowest 20% children in your class. They are strategies to enable children working within the lowest 20% to access and meet the demands of our mastery curriculum. These strategies include; Live Modelling, Support or scaffold, varied questions, setting the 'Bigger Picture', key vocabulary, 1:1 support, 1:2 support and carefully planned independent learning time.

Assessment

Assessment is an integral part of teaching and learning. We assess children's progress in Science through a combination of written work, practical activities, class and group discussions and quizzes. Key components are shared during each lesson so that children understand their learning journey. These components are manageable and lead on to a composite goal – the intended knowledge that children should have acquired.

We assess children's work by making informal judgements as we observe them during each history lesson. On completion of a piece of work, the teacher marks the work and comments as necessary. The assessment of children's work will enable children to reflect upon and celebrate achievement as well as help plan for progression, continuity and target setting for children.

During the fifth week of the term, children complete a bespoke quiz – assessing their understanding of the unit taught. Any misconceptions identified in these assessments are addressed immediately.



Science Curriculum Overview

	<u>Autumn 1</u>	<u>Autumn 2</u>	<u>Spring 1</u>	<u>Spring 2</u>	<u>Summer 1</u>	<u>Summer 2</u>
Nursery	Plants	Living things and their habitats	How things work	Seasonal changes	Living things and their habitats	Materials
Reception	Plant • •	Living things and their habitats •	Forces	Seasonal changes •	Animals including humans	Materials
EYFS scientific Enquiry	<p>Expectations for the Early Years Foundation Stage (EYFS) in terms of scientific inquiry and curiosity:</p> <p>Work Scientifically:</p> <ul style="list-style-type: none"> • Show curiosity about objects, events, and people. • Ask simple questions about why things happen. • Engage in open-ended activities that encourage exploration and experimentation. • Observe closely, using basic equipment to support their observations. <p>Playing & Exploring:</p> <ul style="list-style-type: none"> • Encourage children to take risks, engage in new experiences, and learn through trial and error. • Support them in performing simple tests to investigate their ideas and hypotheses. • Foster their problem-solving skills, helping them find new ways to do things and test their theories. • Promote the identification and classification of objects, sequences, and cause-and-effect relationships. <p>The World:</p> <ul style="list-style-type: none"> • Encourage children to notice and understand similarities and differences in places, objects, materials, and living things. • Help them use their observations and ideas to suggest answers to questions about the world around them. 					



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- Foster their ability to comment and ask questions about aspects of their familiar world, such as their local environment and the natural world.

Observation and Exploration:

- Guide children to gather and record data to help answer questions.
- Encourage them to closely observe the behaviours of animals, people, and vehicles, fostering their understanding of the world.
- Utilise their senses to explore and engage with the world around them.

Critical Thinking:

- Support children in making links and noticing patterns in their experiences.
- Teach them to choose the appropriate resources for their chosen activities.

Self-Confidence & Self-Awareness:

- Help children handle equipment and tools effectively, boosting their confidence and coordination.

Being Imaginative:

- Encourage them to create simple representations of events, people, and objects.
- Nurture their ability to answer how and why questions about their experiences.

Understanding:

- Promote the making of observations of animals and plants.
- Encourage them to explain why certain things occur and talk about changes in the natural world.
- Support them in developing their narratives and explanations by connecting ideas or events.
- Assist them in building a vocabulary that reflects the breadth of their experiences.



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	These expectations for the EYFS stage set the foundation for fostering scientific curiosity and inquiry in young children, allowing them to explore, ask questions, and develop critical thinking skills in a nurturing and playful environment.					
Year 1	<u>Plants and trees</u>	<u>Light and dark</u>	<u>Push and pull</u>	<u>Seasonal change</u>	<u>Classifying types of animals</u>	<u>Materials</u>
Year 2	<u>Materials</u>	<u>Electricity</u>	<u>Materials – water, steam, ice</u>	<u>Animals including humans</u>	<u>Plants</u>	<u>Living things: habitats and food chains</u>
Year 3	<u>Rocks and fossils</u>	<u>Comparing different animals</u>	<u>Light</u>	<u>Forces and magnets</u>	<u>Plants: comparing sand photosynthesis</u>	<u>Teeth and eating</u>
Year 4	<u>States of matter</u>	<u>Electricity</u>	<u>Friction</u>	<u>Sound</u>	<u>Plants, animals and habitats</u>	<u>Animals, humans and food chains</u>
Year 5	<u>Properties and changes of materials</u>	<u>Gases</u>	<u>Animals and humans: birth, growth and old age</u>	<u>Forces</u>	<u>Life of animals and plants</u>	<u>Earth and space</u>
Year 6	<u>Light</u>	<u>Electricity</u>	<u>Evolution and inheritance</u>	<u>Dissolving</u>	<u>Living things and their habitats</u>	<u>Animals including humans</u>