CLIFTON COMMUNITY PRIMARY SCHOOL

SCIENCE POLICY

'Enjoy and Achieve Together'

Head Teacher A.McIlveen	Sign and Date	September 2025
Author L. Marshall	Sign and Date	September 2025

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Change History

Version	Date	Change Description	Stored
1	Sept 25	Added Rosenshine's Principles of Instruction	Google drive – curriculum – Science
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CLIFTON PRIMARY SCHOOL

Curriculum Policy for Science

Mission Statement: 'Enjoy and Achieve Together'

At Clifton Primary School we believe it is important that:

- Children are given the opportunity to explore and understand the world in which they live.
- Science is about giving children the tools to develop their ideas and ways of working that enable them to understand the world through investigation with independence, resilience and enjoyment.
- A broad and balanced science education is the entitlement of all children, regardless of ethnic, origin, gender, class, aptitude or disability.

Intent – What we will do:

Knowledge:
We want our children to:

- Develop their scientific knowledge and conceptual understanding through working scientifically.
- Develop their knowledge and understanding of how scientific processes work and how these will help them answer questions about the world around them.
- Be curious and question why and how things happen.
- Begin to be equipped with the scientific knowledge required to understand the uses and implications of science today and for the future.
- Gain confidence and to become life-long learners of STEM subjects in and out of school.

Skills:
We want our children to:

- Develop an understanding of scientific processes.
- Acquire practical scientific skills.
- Develop the skills of investigation - including observing, measuring, predicting, hypothesising, experimenting, communicating, interpreting, explaining and evaluating.
- Develop the use of scientific language, recording and techniques.
- Develop the use of computing in investigating and recording.
- Become effective communicators of scientific ideas, facts and data.
- Work scientifically, conducting fair tests.
- To use scientific skills across the curriculum

Implementation – How we will do it

We aim to:

- Teach science, through the implementation of the National Curriculum, in ways that are engaging, imaginative, purposeful, well-resourced and enjoyable to all.
- Give clear and accurate teacher explanations and offering skilful questioning.
- Make clear links between science and other subjects.
- Ensure children are given enough time to study the four main areas of the science curriculum. These are: Scientific enquiry, Life and living processes, materials and their properties and physical processes.
- Offer ample opportunities for practical investigation and enquiry.

At Clifton, science is taught every half term. The teaching and learning of science is based on investigation, observation and application. We ensure children are exposed to many different scientific topics throughout their time at school and use a spiral curriculum to continually build on existing concepts to create 'sticky knowledge'.

The teaching of Science within the EYFS:

Within EYFS, science is a vital part of the topics covered throughout the year and it is integrated into their learning and continuous provision. We relate this to the scientific aspects in the Development Matters non-statutory guidance and through the objectives of the ELG and EYFS framework, focusing mainly on Understanding the World.

Understanding the World – The Natural World	Materials, including changing materials - Properties of materials - Using senses to explore - Natural materials, indoors and outside Forces - Explore how things work - Talk about different forces they can feel Living things and their habitats - Explore natural phenomena - Understand the need to respect and care for the environment - Using senses to explore Plants - Plant seeds and care for growing plants Animals, excluding humans - Life cycle of animals
Understanding the World – People, Culture and Communities	Humans - Recognise features of their family and other families - Differences between people - Name and describe people who are familiar to them

The teaching of Science in Key Stage 1 [KS1]:

Within KS1, children are given the opportunity to be curious, to ask questions and to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. Children are helped to develop their understanding of scientific ideas by using scientific enquiry – there are opportunities for children to develop **observation over time,** noticing **patterns**, **grouping and classifying, carrying out simple comparative tests** and finding things out using **secondary sources.** They should also begin to develop, use and understand scientific language and begin to communicate their ideas. Most of the learning in science should be done through first-hand practical experiences but they may also use age-appropriate secondary sources such as books, photographs and videos.

Cycle 1 - Topics	**Cycle 2 – Topics**
Living things and their habitats - Differences between things that are living and dead, and things that have never been alive - Basic needs of animals and plants, and how they depend on each other - Simple food chains Plants (1) - Observe how seeds and bulbs grow - Requirements of plants to stay healthy Plants (2) - Identify and name common wild and garden plants, including trees - Describe the basic structure of plants - Uses of everyday materials - Suitability of everyday materials - Observe how materials can be changed by squashing, bending, twisting and stretching. Everyday materials - Identify everyday materials - Distinguish between objects and the material from which it is made - Describe simple physical properties	Animals including humans (1) - Basic needs of animals for survival - Importance of exercise, diet and hygiene - Animals and their offspring - Animals including humans (2) - Identify variety of common animals. - Identify carnivores, herbivores and omnivores - Label the basic parts of the human body - The five senses Seasonal changes - Changes across the four seasons - Observe how day length varies with the seasons - Observe and describe the weather associated with the seasons

The teaching of Science in Lower Key Stage 2 [KS2]:

Within LKS1, the focus is enable children to broaden their scientific views and knowledge of the world around them, building upon what they have learned and remembered from Key Stage 1. This is achieved through exploring, testing and developing their own ideas about everyday phenomena and the relationships between living things and familiar environments. Children will ask their own questions about what they observe and begin to make decisions about which scientific enquiries would be best to help answer them. Pupils will use many different scientific enquiries by **observing changes over time,** noticing **patterns**, **classifying**, carrying out simple, comparative **fair tests** and **using secondary sources of information.** They should also draw simple conclusions and use some scientific language to talk about and write about what they have found out.

Cycle 1 – Topics	**Cycle 2 – Topics**
Plants - Functions of different parts of plants - Requirements of plants for life and growth - Life cycle of flowering plants Animals including humans - Nutrition of animals, including humans. - Skeletons and muscles for support, protection and movement Rocks - Group different kinds of rocks based on physical properties - Fossils Light - How shadows are formed - Find patterns in the way the size of shadows change - Recognise that darkness is the absence of light Forces and magnets - Forces between two objects - Observe how magnets attract and repel each other - Compare how things move on different surfaces	Living things and their habitats - Classification of living things based on specific characteristics - Recognise the dangers that change can pose to living things Animals including humans - Human digestive system - Types of teeth and their functions - Food chains States of matter - Solids, liquids and gases - Changes of state by heating or cooling - Evaporation and condensation Sound - Identify how sounds are made - Find patterns between pitch and volume Electricity - Common appliances that use electricity - Construct simple circuits

The teaching of Science in Upper Key Stage 2 [UKS2]:

Within UKS2, the focus is to enable pupils to develop a deeper understanding of a wide range of scientific ideas and skills. Children should explore and talk about their ideas, think of their own questions about scientific phenomena and analyse data using knowledge and skills from their mathematical learning. UKS2 exposes children to more abstract ideas and enables them to select appropriate ways to investigate and answer scientific questions and they should also begin to recognise how these abstract ideas can help them understand and predict how the world operates. Children in Year 5 and 6 will also begin to recognise how scientific ideas can change and develop over time. Pupils will use many different scientific enquiries by **observing changes over time,** noticing **patterns**, **classifying**, carrying out **fair tests** and **using primary and secondary sources of information.** There will be opportunities for pupils to draw conclusions based on their observations and any relevant data found. Children will learn to use this evidence to justify their ideas and use their scientific knowledge and understanding to explain their findings.

Cycle 1 - Topics	**Cycle 2 – Topics**
Living things and their habitats - Life cycles - Reproduction in some plants and animals Living things and their habitats - Classification of living things based on specific characteristics Properties and changes of materials - Group materials based on their properties - Reversible and irreversible changes - Filtering, sieving and evaporating Earth and space - Movement of the Earth and other planets relative to the Sun - Use Earth's rotation to explain day and night - Movement of the moon relative to the Earth Forces - Force of gravity - Effect of air resistance, water resistance and friction - Mechanisms	Animals including humans - Human circulatory system - Impact of diet, exercise, drugs and lifestyle Animals including humans - Changes of humans as they age Evolution and inheritance - Recognise living things have changed over time - Offspring - Adaptation of plan and animals to their environments Light - Explain how light travels - Explain how we see things because of light Electricity - Symbols in a circuit - Variations in a circuit

In addition to the knowledge and understanding aspects of the National Curriculum, emphasis is on scientific investigation and enquiry, including the correct use and care of scientific apparatus.

Teachers are encouraged to actively teach science skills, and reinforce learning with selected enquiry stimulations. We encourage children to ask and answer their own questions as often as they like.

Children should complete at least one investigation per topic. These investigations should be based on their current topic and have a focus on developing the children's scientific enquiry skills. This allows our children to be exposed to scientific vocabulary and develop their enquiry skills outside of science lessons.

For more detailed information about science learning in each year group, please see out subject overview and progression document for science.

Impact - What we can now do:

Assessment and recording:
We collect evidence for impact in the form of:

- Scrutiny of children's work
- Teacher assessments made against the National Curriculum objectives at the end of each term, recorded on insight, and an overall assessment of children's progression at the end of the year.
- Photographic evidence
- Pupil voice
- Final assessment pieces in the form of either an assessment task through a quiz style.
- Regular lesson observation
- Learning walks - Learning which is displayed on the working wall
- Reports to parents are written once a year, describing each child's attitude and attainment in science

Each topic commonly begins with a WOW lesson and to find out what the children already know. The learning objective for the lesson is always shared with the children. However, this may not always be at the beginning of the lesson, for example, when the investigation or enquiry leads the children to discovering the learning objective for themselves.

Children are involved in the process of self-improvement, recognising their achievements and acknowledging where they could improve on for next time. Challenges and fix-its are given appropriately to improve their science knowledge. Opportunities for self-generated questions are sought and children encouraged to seek the answers.

Rosenshine's Principles of Instruction

At Clifton, our teaching across all subjects is underpinned by Rosenshine's Principles of Instructions. These research-based principles support effective teaching and learning by promoting clear modelling, guided practice and regular review. Teachers ensure that new content is introduced in small steps, with frequent questioning and checks for understanding to prevent cognitive overload, support long-term retention and to help address misconceptions promptly. Through a consistent focus on retrieval practice, scaffolding and opportunities for independent application, we help all children build secure foundations and make sustained progress. These principles are embedded in our planning, delivery and assessment processes across the curriculum.

Safeguarding, Inclusion and Equal Opportunities:

At Clifton, we have high aspirations and expectations for all children. Children learn and thrive when they are healthy, safe and engaged. In all subjects, we are committed to safeguarding children and as such, we maintain an ethos where children feel safe, encouraged to talk and are listened to. We ensure that children know they can approach and talk to adults if they are

worried or in difficulty. We support children with their emotional wellbeing and health, recognising that subjects may sometimes be sensitive for children. Clifton Primary believes in inclusion and equal opportunities meaning that all children should have access to a broad and balanced curriculum, including science, which enables them to make the greatest progress possible according to their individual abilities. We provide learning opportunities that are matched to the needs of the children making reasonable adjustments where needed. Lessons are planned in advance addressing any potential areas of difficulty and barriers to the children achieving are removed. We will ensure that expectations do not limit pupils' achievements, supporting where there is a need and extending children's learning who need further challenging.

Protected Characteristics

In adherence to the Equality Act 2010, the staff at Clifton Primary are not only aware of the protected characteristics but accept fully that it is unlawful to discriminate against anyone on the grounds of disability, age, race, gender reassignment, pregnancy and maternity, religion or belief, sexual orientation, marriage or civil partnership or sex. Furthermore, at Clifton, it is the responsibility of all teachers to ensure that all children's protected characteristics are fully recognised and that irrespective of SEN, gender, ethnicity, sexual orientation, LGBTQ+, social circumstance and ability (including gifted and able children), ALL have access to the curriculum and make the greatest progress possible. We also ensure that, where possible, materials utilised in lessons are broad and reflective of the diverse society we are a part of.

Review:
This policy will be reviewed annually by the science curriculum leader.