

SCIENCE POLICY

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Reviewed and approved by: N Parry

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Linked Policies

This policy is the umbrella policy for Somerville Primary School's curriculum. Each individual subject area has its own policy document or subject statement to add extra detail and clarification. It should be read in conjunction with the Curriculum, Teaching and Learning, Assessment, SEND, Marking and Feedback and Homework documents.

SCIENCE INTENT AT SOMERVILLE

Our vision for Science at Somerville Federation is to provide our children with a science curriculum which enables them to explore and discover the world around them. The children will acquire the skills, knowledge and opportunities to develop a lifelong love of science.

Our Science Policy follows The National Curriculum 2014 for Science Guidelines and aims to ensure that all pupils:

- develop **scientific knowledge and conceptual understanding** through the specific disciplines of Biology, Chemistry and Physics;
- develop understanding of the **nature, processes and methods of Science** through different types of science enquiries that help them to answer scientific questions about the world around them;
- are equipped with the scientific knowledge required to understand the **uses and implications** of Science, today and for the future.

The Somerville Science Curriculum is designed to:-

- Ensure children build on **prior learning** to deepen their scientific understanding.
- Teach **engaging and stimulating science lessons** which inspire the children.
- Encourage children to **generate questions** and use discussion to develop their ideas and understanding
- Ensure children have **practical hands on experience** across the 5 lines of enquiry
- Develop children's use of key **scientific vocabulary** in context
- Ensure children will apply their knowledge and understanding to **real life experiences**.
- Engage with the **wider school community** through visitors and trips throughout their Somerville science journey.
- Allow children to work as scientists.

CURRICULUM IMPLEMENTATION AT SOMERVILLE

Approach to Teaching and Learning and Pedagogy

Our approach to teaching science supports our Somerville Curriculum by ensuring that lessons build on prior learning and provide sufficient opportunity to build 'sticky' knowledge across the school and across subject areas that has been carefully planned.

The LTP for science shows National Curriculum coverage, progression across year groups, gaps in knowledge (due to Covid) and opportunities for trips and visitors.

A detailed MTP for each topic across the school has been created to ensure progression, equip the teachers with the content to teach and lessen the short term planning burden.

Every science MTP contains:

- An **entry point** activity to excite the children
- **Books chosen specifically for their quality** linked to the topic to be included in lessons
- **Previous year group knowledge** on the topic
- **Intent** – topic objectives to be covered

- **Implementation** – sequence of activities and evidence to achieve the Intent objectives
- **Misconceptions** – to address if they arise
- Specific **Key Vocabulary** to be addressed throughout the topic
- **Impact** – TAPS assessment activity to inform assessment judgement
- **Sticky links** to be embedded
- New year group objectives for **future learning**

How is science taught at Somerville?

- Science is taught in two separate blocks each half term to ensure continuity and progression throughout the topic. The blocks are split in order to recap, embed previous knowledge before moving on to new knowledge.
- The children start each new topic by stating what prior knowledge they have on a topic so teachers can assess their previous knowledge and understanding. The children are also provided with the opportunity to generate their own questions to develop their own enquiry skills.
- Each child is provided with the Knowledge Organiser for their topic containing: key vocabulary and definitions, key knowledge that will be covered and significant scientists. The knowledge Organisers will be stuck into the child's book as well as the science working wall so the children can refer to them in every lesson.
- The teachers follow the Intent and Implementation on the MTP to ensure the children the children cover all the objectives through engaging practical lessons. On each MTP there are practical activities stated to ensure coverage of the different lines of enquiry.
- Throughout the topic teachers are to use activities from Explorify and Concept Cartoons to develop children's curiosity, vocabulary, questioning and discussions skills to develop and embed the knowledge and understanding of science concepts
- A practical TAPS activity will be carried out in each topic to be part of the ongoing formative assessment.
- Working walls will be regularly updated and may contain: school vision, knowledge organiser, key vocabulary, key science concepts, photographs, discussion work (through using concept cartoon and Explorify activities) scientist's facts and children's work.
- Photographs of practical work should be either in books or on twitter #somervillescience

Enrichment Experiences

Science resources are all labelled and organised in topic boxes in the science cupboard to ensure teachers are equipped to teach engaging practical lessons. It is the responsibility of teachers to inform Science leader verbally or by email when resources are running low or have run out and new resources will then be ordered.

Each MTP has an Entry point activity or experience to excite the children, develop their curiosity and love of science. This will provide opportunities to have visitors, trips and to engage with the wider school community throughout their Somerville science journey. In addition to this the children will learn about a diverse range of scientists throughout the year as each knowledge organiser links to a scientist from the past or present.

The outdoor environment, our Forest School, the local community and amenities and places and sites further afield are considered to be valuable opportunities for active learning across

the curriculum. We are committed to ALL learners having high quality learning experiences beyond the classroom walls and these have been integrated into the implementation of our curriculum.

Reading and Vocabulary

Somerville has a range of science books which are specified on each MTP and teachers are to incorporate these books into their lessons to enhance the teaching and learning of science. Key science vocabulary is stated on every MTP, Knowledge Organisers and should be displayed on working walls. It is important to that the children understand and embed the key vocabulary in every topic to ensure they can explain scientific concepts successfully. Shared reading in Y3-6 now covers a non-fiction science unit which involves reading a range of science language rich texts, developing key vocabulary and understanding of key concepts. The shared reading unit will embed and consolidate the children's science knowledge and understanding through quality reading texts.

Special Educational Needs and Science

To ensure all children can make progress in science lessons need to be differentiated appropriately. Lessons should be differentiated either by task, outcome or support given. Worksheets should be scaffolded for lower ability children to ensure they can access the science lessons and make progress. Children should also be supported through use of knowledge organisers or word banks in order to access and use key vocabulary in their work.

CURRICULUM IMPACT AT SOMERVILLE

How do we assess science at Somerville?

This is achieved through:

- Beginning each unit by carrying out a diagnostic assessment. From this, teachers can identify levels of prior knowledge, understanding and misconceptions, which will inform their planning.
- Working scientifically will be informally assessed throughout the year during practical investigations which will inform judgments to be recorded on electronic system.
- Completing at least one TAPS assessment activity in a topic to be used as formative assessment
- Children completing an end of topic partially completed knowledge organiser to assess their knowledge and understanding of the topic.

Ongoing assessment throughout the topic of all the above and use of the ASE moderation materials will support teachers in making their judgements and the data will be recorded on the electronic system which the next teacher will have access to.

When children leave Somerville we want them equipped with the knowledge and understanding to continue and develop a lifelong love of science that could lead to a career in STEM.

EQUALITY IN SCIENCE EDUCATION

Somerville Primary School is committed to valuing diversity and to equality of opportunity. We aim to create and promote an environment in which pupils, parents and staff are treated fairly and with respect, and feel able to contribute to the best of their abilities. The Governing Body recognises that it is unlawful to take into account anyone's gender, marital status,

colour, race, nationality, ethnic or national origin, disability, religious beliefs, age or sexual orientation. Full consideration has been given to this during the formulation of this policy as it is the governors' aim that no-one at Somerville Primary School should suffer discrimination, either directly or indirectly, or harassment on any of these grounds.

SMSC

When writing this policy and planning for lessons we have planned in opportunities that allow discussion and learning around pupils social, moral, spiritual and cultural development.

Teachers will raise questions in a range of topics and children will also be encouraged to raise their own questions.

In every science unit the children are exposed to scientists from the past and present and from different multicultural backgrounds to encourage and develop children's interest in develop a career in science.

SAFETY

Following COSHH guidance 'Be Safe' and Wirral Safety Guidelines. Teachers are expected to follow guidelines and risk assess.

