Samuel Allsopp

Primary & Nursery School

Science Subject Policy

2024-2025

Schedule of review

Date written: **November 2024**

Shared with SLT/Governing body: **Awaiting Ratification - November 2024**

Next review: **November 2025**

Samuel Allsopp Primary and Nursery School Intent Statement

At Samuel Allsopp Primary & Nursery School, our curriculum and all that we do intends to:

- Be supportive and inclusive of the needs for all learners
- Harness pupil independence & allows them to have a go at solving problems for themselves first
- Allow children to make their own 'informed' choices
- Develop their confidence
- Support them to be resilient and get into good habits for the future
- Prepare children for a life outside of school that enables them to make a positive contribution to British society
- Enable them to be proficient users of the English language – speaking and writing
- Widen their contextual vocabulary
- Work independently but also in teams
- Encourage children to go 'beyond their own normal' and experience new things
- Engage children in making a contribution and playing an active part
- Support parents to become active stakeholders in their child's learning
- Provide opportunities for the children to investigate, explore and play an active part in shaping their learning

Intent

At Samuel Allsopp Primary and Nursery School we recognise that our children are growing up in a world that increasingly requires scientific literacy and critical thinking skills. Science is all around us, our science curriculum aims to support and guide our children to make sense of the world around them. We recognise the importance of science and strive to maintain a high profile for the subject within our school. Our desire is to empower and motivate children to develop a lifelong love of Science, which is reflected in our curriculum and learning environments. A good scientist observes, questions, hypothesises, experiments, records data, and then analyses that data. All children can be scientists by following their own natural curiosity, our teachers help to build and reinforce these skills so that our children are able to thrive and achieve.

Science teaching and learning looks good when:

- It makes meaningful links between classroom learning and the real world, and is linked across the curriculum subjects
- It develops scientific literacy, oracy and critical thinking skills by enabling children to design and carry out their own investigations
- It encourages progress, and allows children to fulfil their potential regardless of their circumstances
- It nurtures curiosity, wonderment and a sense of excitement

Our Science curriculum aims to develop a sense of excitement and curiosity about natural phenomena and an understanding of how the scientific community contributes to the past, present and future. The curriculum aims for pupils to develop a complex knowledge of

biology, chemistry and physics but also adopt a broad range of skills in working scientifically and beyond. The scheme of work is inclusive and meaningful so all pupils may experience the joy of science and make associations between their science learning and their lives outside the classroom. Studying science allows pupils to appreciate how new knowledge and skills can be fundamental to solving arising global challenges. The curriculum aims to encourage critical thinking and empower pupils to question the hows and whys of the world around them.

At Samuel Allsopp Primary and Nursery School, we aim for all pupils the following:

- A strong focus on developing knowledge alongside scientific skills across biology, chemistry and physics.
- Curiosity and excitement about familiar and unknown observations.
- Challenging misconceptions and demystifying truths.
- Continuous progression by building on practical and investigative skills across all units.
- Critical thinking, with the ability to ask perceptive questions and explain and analyse evidence.
- Development of scientific literacy using wide-ranging, specialist vocabulary.

For the above principles to be achieved, we will:

- Provide frequent, high-quality, hands-on experiences related to Science
- Provide teachers with opportunities to further develop their subject knowledge
- Provide opportunities for children to experiment and plan their own investigations, and give them the support they need to be able to develop scientific skills
- Provide frequent opportunities for children to share what they already know, ask their own questions and be curious about science

We use Quality First Teaching to ensure that disadvantaged pupils, pupils with SEND and higher attaining pupils are given the best opportunity to learn in a way which benefits them and enables them to achieve. This policy outlines the purpose, nature, and management of Science that is taught and learned throughout our school.

National Curriculum Aims:

The National Curriculum for Science 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.

To ensure consistence of teaching and learning, we follow and adapt the Kapow Science curriculum that builds on previous learning and provides both support and challenge for learners giving them every opportunity to develop their knowledge and skills.

The Science scheme of work enables pupils to meet the end of key stage attainment targets in the National Curriculum and the aims also align with those in the National Curriculum. It also supports the journey, inspiring children and young people to think critically and work scientifically whilst completing investigations.

To meet the aims of the National curriculum for Science and in response to the Ofsted research review: Science, Kapow has identified the following key strands:

- Scientific knowledge and understanding of:
    - biology: living organisms and vital processes;
    - chemistry: matter and its properties;
    - physics: how the world we live in 'works'.
- Working scientifically: processes and methods of science to answer questions about the world around us.
- Science in action: uses and implications of science in the past, present and for the future.

Inclusion Statement

The Staff and Governors of Samuel Allsopp Primary and Nursery School believe that:

- Inclusion is an ongoing process by which the caring and learning environment is constantly monitored and adapted to meet the needs of all our pupils.
- All of our pupils are entitled to support in fulfilling their own potential in terms of academic, physical, cultural, social, emotional and moral development.
- We recognise that ALL our pupils are individuals with their own characteristics, strengths, weaknesses and learning needs.
- Our policies and practises will therefore, take account of the diverse needs and talents of our pupils.
- Pupils with additional emotional, social or learning needs should have access to high quality education and support appropriate to their needs.
- Pupils with Special Education Needs (SEND) should have access to high quality education and support appropriate to their needs.

Implementation

Kapow Primary's Science scheme is a spiral curriculum, with essential knowledge and skills revisited with increasing complexity, allowing pupils to revise and build on their previous learning. A range of engaging recall activities promotes frequent pupil reflection on prior learning, ensuring new learning is approached with confidence. The Science in action strand is interwoven throughout the scheme to make the concepts and skills relevant to pupils and inspiring for future application. Cross-curricular links are included throughout each unit, allowing pupils to make connections and apply their science skills to other areas of learning. Each unit is based on one of the key science disciplines: biology, chemistry and physics. The

National curriculum content has been grouped into six key areas of science to show progression throughout the school:

- Plants
- Animals, including humans
- Living things and habitats
- Material
- Energy
- Forces
- Earth and space.

Pupils explore knowledge and conceptual understanding through engaging activities and an introduction to relevant, specialist vocabulary. As suggested in Ofsted research review: Science (April 2021), the Working scientifically skills are integrated with conceptual understanding rather than taught discretely to provide frequent but relevant opportunities for developing scientific enquiry skills. The scheme utilises practical activities that aid in the progression of individual skills and provide opportunities for full investigations.

Lessons incorporate various teaching strategies, from independent tasks to paired and group work, including practical, creative, computer-based and collaborative tasks. This variety means that lessons are engaging and appeal to those with different learning styles. In Year 1, the transition into the Key stage is eased by providing a selection of activities: some adult-led, some independent tasks and some that can be used during continuous provision. Adapting the learning for every lesson, ensures all pupils can access it and opportunities to stretch their learning are available. Knowledge organisers for each unit help to identify key learning and vocabulary and can be useful as an adaptive teaching tool or to revise learning from the unit. Strong subject knowledge is vital for staff to deliver a highly effective and robust science curriculum.
Documentation to support implementation: Kapow's National curriculum coverage document shows which of the units cover each of the National curriculum attainment targets and the strands within them. Progression of skills and knowledge shows the skills and key knowledge taught within each year group and how these skills develop year on year to ensure attainment targets are securely met by the end of the key stage.

Health and Safety

Health and safety in Science is maintained to a high standard to ensure pupils and staff are protected from harm whenever possible. This includes both their physical and mental health,

ensuring that Samuel Allsopp Primary and Nursery School complies with the Health and Safety at Work etc. Act 1974.

Health and Safety awareness forms an integral part of pupils learning. Pupils must be taught to recognise hazards and take appropriate action. As necessary, risk assessments will be conducted to ensure that all potential risks and harms have been identified and to ensure that staff understand how to respond should an unexpected risk occur.

Remote Learning

In the case of remote learning opportunities being necessary in the future, pupils at Samuel Allsopp Primary and Nursery School will continue to be taught Science through live lessons, pre-recorded videos and online learning materials.

Impact

Impact is constantly monitored through both formative and summative assessment opportunities, assessing pupils against the learning objectives and any relevant scientific enquiry skills. Furthermore, each unit has a unit quiz and knowledge and skills catcher which can be used at the start and/ or end of the unit. Opportunities for pupils to communicate using scientific vocabulary will also form part of the assessment process in each unit. After implementing Kapow Primary Science, pupils should leave school equipped with the requisite skills and knowledge to succeed in science at Key stage 3. They will have the necessary tools to confidently and meaningfully question and explore the world around them and critically and analytically experience and observe phenomena. Pupils will understand the significance and impact of science on society.

The expected impact of following the EYFS Curriculum and Kapow Primary Science scheme of work is that pupils will:

- Develop early scientific thinking skills through hands-on exploration and sensory experiences in EYFS (Reception).
- Develop a body of foundational knowledge for the biology topics in the National curriculum: Plants; Animals, including humans; Living things and their habitats; and Evolution and inheritance.
- Develop a body of foundational knowledge for the chemistry topics in the National curriculum: Everyday materials; Uses of everyday materials; Properties and changes of materials; States of matter; and Rocks.
- Develop a body of foundational knowledge for the physics topics in the National curriculum: Seasonal changes; Forces and magnets; Sound; Light; Electricity; and Earth and space.

- Evaluate and identify the methods that 'real world' scientists use to develop and answer scientific questions.
- Identify and use equipment effectively to accurately gather, measure and record data.
- Be able to display and convey data in a variety of ways, including graphs.
- Analyse data to identify, classify, group and find patterns.
- Use evidence to formulate explanations and conclusions.
- Demonstrate scientific literacy through presenting concepts and communicating ideas using scientific vocabulary.
- Understand the importance of resilience and a growth mindset, particularly in reference to scientific enquiry. Meet the end of key stage expectations outlined in the National curriculum for science.

Feedback, Marking and Assessment

At Samuel Allsopp Primary and Nursery School feedback is given following the expectations of the Marking Policy.

Pupils are assessed on a lesson-by-lesson basis by teaching staff and lesson content is adapted accordingly. Every lesson begins with the 'Recap and recall' section which is intended to allow pupils retrieval practice of key knowledge relevant to the upcoming lesson. This section also provides teachers with an opportunity to make informal judgements about whether pupils have retained prior learning and are ready to move on.

At the end of each unit of work, children's understanding and retention of key knowledge is assessed using an assessment quiz.

In addition, each unit uses either a skills or knowledge catcher, depending on the key strands covered in the unit. This can be used at the beginning and/or end of a unit and gives children the opportunity to further demonstrate their understanding of the key concepts covered. Assessment quizzes, and skills and knowledge catchers provide teachers with a record of summative assessment as evidence of progression throughout the year and as pupils move between key stages.

Monitoring and Review

To ensure high standards of teaching and learning of Science are maintained, the Science Coordinator , will regularly monitor and review staff practice in accordance with this policy. This process will be conducted termly in line with the monitoring calendar.

Relevant data will be collected to enable monitoring processes to be conducted. This includes:

- classroom observations
- learning walks
- sketch books looks
- pupil voice
- planning looks

To ensure that staff professional development is benefited by this process, the Science Coordinator will ensure that any relevant training or development opportunities are made available. Individual staff members will be given relevant feedback and will be celebrated or supported to develop their practice accordingly.

Resources

Science resources are stored across both sites and will be reviewed by the Science Coordinator throughout the year. Resources should be returned to the store cupboards after each lesson and teachers should inform the Science Coordinator of any resources required in advance of the unit of work being taught and preferably at the start of the school year.

This policy will be reviewed annually to reflect any necessary changes required and to ensure that staff are kept up to date with expectations relating to Science.