SCIENCE POLICY

Approved by:	
Approved on:	
Last reviewed on:	
Next review due by:	

INTRODUCTION

Purpose

Our vision in science is to inspire curiosity in children so that they ask questions that fuel explorations and investigations about the universe we live in.

Aims

Our learning in science enables our pupils to:

- Develop their natural curiosity and allow them to ask questions and develop the skills they need to answer those questions.
- Build key knowledge and understanding of concepts through exploring and investigating the world around them
- Develop the skills needed to plan, carry out investigations, interpret data and make predictions
- Use scientific language and vocabulary accurately
- To use opportunities to identify and explore links between science and other subjects, as well as children's lives more generally.
- To provide a broad and balanced curriculum which is interesting, engaging and provides a range of learning opportunities and challenges, which will develop a life-long love of learning and be accessible by all children.
- To deliver all the requirements of the national curriculum in relation to science and covering major scientific concepts.
- To ensure all science units are enquiry based, purposeful, accurate and imaginative.
- To ensure the curriculum is accessible by all.
- To ensure pupils have sufficient scientific knowledge to understand both the uses and implications of science, today and in the future.
- To develop pupils' ability to pose questions, investigate these using correct techniques, accurately record their findings using appropriate scientific language and analyse their results.
- To help pupils develop the skills of prediction, hypothesising, experimentation, investigation, observation, measurement, interpretation and communication.

Intent

Science is woven into every aspect of our lives, and understanding its processes is essential for the future prosperity of our world.

At Stonebridge Primary, our intent is to foster a passionate and enthusiastic love of science, inspiring children to become curious learners who actively seek to understand the world around them. Our curriculum, carefully designed by staff to ensure full coverage of the National Curriculum, nurtures a sense of wonder, discovery, and fascination with natural phenomena.

We are committed to providing a learning environment that is stimulating, engaging, and challenging, ensuring science excites children and sparks their personal curiosities. Pupils learn to recognise that science is everywhere, helping them to understand the ways it shapes and enriches everyday life.

Through our science curriculum, children develop both knowledge and skills, gaining a deeper understanding of scientific processes and an appreciation of the role and impact of science in the modern world and beyond. We equip them with the ability to think critically, learn independently, solve problems, and make informed decisions.

Our pupils become confident young scientists by:

- Identifying and solving problems with creativity and resilience.
- Designing and carrying out investigations to explore and answer meaningful questions.
- Using digital tools and equipment to increase accuracy and precision.
- Recognising patterns in data and drawing evidence-based explanations.

In this way, science at Stonebridge empowers pupils to **LEAP forward** with curiosity, confidence, and ambition, preparing them to engage with the challenges of tomorrow.

LEAP represents the curriculum principles that guide learning at our school:

- **Language-Rich** – We nurture confident communication by providing rich opportunities to talk, listen, and build vocabulary, enabling children to express their ideas clearly and to the highest standard.
- **Experiential** – We bring learning to life through hands-on experiences such as trips, visits, art, design, and real-world exploration that inspire curiosity and deepen understanding.
- **Ambitious** – We set the highest expectations for every learner, encouraging them to achieve their very best and believe in their potential.
- **Purposeful** – We design learning that builds on what children already know, carefully addressing gaps to ensure meaningful and connected progress.

Together, these principles empower children to **LEAP forward in their learning, grow, and future fulfil their potential.**

The following table shows our school's intent for children:

Language Rich • Working walls display key scientific knowledge and vocabulary to support retrieval, reading comprehension, and reference during lessons. • Modelled sentence structures guide children in forming clear, coherent scientific explanations, strengthening their ability to write accurately and fluently. • Every lesson includes a Talk Task, enabling children to articulate and apply their scientific knowledge, supporting oral rehearsal before writing. • Precise scientific vocabulary is explicitly taught, modelled, and consistently reinforced to develop accurate spelling and confident communication. • Reading high-quality scientific texts supports pupils in decoding and understanding subject-specific language, ensuring that *foundational literacy skills* are continually practised within a scientific context.	**Experiential** • Children explore science in the local environment, applying reading, writing, and mathematical skills in meaningful, real-world contexts. • Lessons highlight how science shapes everyday life, promoting reading comprehension and vocabulary development through authentic examples. • Prior knowledge and personal experiences are used as stepping stones for deeper learning, with teachers modelling how to record findings using coherent sentences and accurate spelling. • Every lesson includes a Talk Task to help children verbalise, refine, and extend their ideas before writing or presenting findings. • First-hand experiences through practical experiments provide opportunities to apply *foundational numeracy skills*, such as measuring, counting, and recording data. • Educational visits enrich learning and offer further opportunities for reading, writing, and calculating in context. • Children are encouraged to ask questions, record predictions, and plan enquiries — reinforcing clear sentence construction and mathematical reasoning.
Ambitious • Each lesson includes a hinge question to check understanding, ensuring pupils can apply *foundational literacy and numeracy skills* to interpret, explain, and evaluate scientific ideas. • Children are introduced to a wide range of STEM careers, understanding how reading, writing, spelling, and mathematical fluency are essential to success in these fields. • Stimulating experiences are provided to spark curiosity and deepen scientific understanding while also strengthening the *foundational skills* that underpin future academic and career success. • Teachers have high expectations that all pupils, including those with SEND or EAL, will develop the *foundational knowledge* necessary to access and succeed in science learning.	**Purposeful** • Children learn to use and transfer reading, writing, and mathematical skills across scientific contexts, applying them purposefully to record, analyse, and explain findings. • Pupils are guided to plan and carry out investigations with clear intent and accuracy, using correct sentence structure and units of measure. • Learning is carefully sequenced to ensure both scientific and *foundational knowledge* build progressively and meaningfully over time. • Opportunities for reading, writing, spelling, and calculating are woven through every stage of scientific enquiry, ensuring skills are practised regularly. • Teachers check pupils' understanding of *foundational literacy and numeracy skills* to ensure they can access and express scientific learning effectively.

At Stonebridge Primary school, we follow the Developing Experts science scheme which are fully aligned to the National Curriculum and designed to improve learning outcomes for all pupils. It provides a clear overview and is followed by EYFS, KS1 and KS2 pupils.

The programme provides comprehensive coverage of all topic areas across year groups, supported by a wide range of interactive and visual digital resources. Additional lessons are available to extend pupils' learning further. *Developing Experts* adopts a first-hand, practical approach to teaching science, encouraging curiosity and investigative skills in pupils. Each lesson incorporates three progressive challenges, ensuring built-in differentiation and reducing teacher workload in planning. The programme also clearly maps progression across year groups, demonstrating how scientific knowledge and skills are developed and extended through each phase.

Working Scientifically develops pupils' understanding of the nature, processes and methods of science, providing the foundation for deepening their knowledge of the world. Different aspects of *Working Scientifically* are embedded across all topics to promote curiosity and scientific enquiry. Pupils are supported to ask questions, make predictions, plan and carry out investigations, conduct research, and collect, analyse and present data. As pupils progress through the school, they are taught to apply increasingly accurate methods and use more precise scientific recording equipment.
To access *Working Scientifically*, each lesson incorporates both **substantive knowledge** and **disciplinary knowledge**.

- **Substantive knowledge (the content of science):** The established facts, concepts, laws and theories that underpin the subject. For example, the process of photosynthesis.
- **Disciplinary knowledge (the process of science):** The skills and practices used by scientists, including asking questions, designing experiments, analysing evidence and developing theories. This also includes an understanding of the nature of science.

At The Stonebridge School we will provide high quality, inclusive teaching of a broad and balanced science curriculum that engages and enthuses all pupils regardless of ethnic origin, English language competency, gender, class, aptitude, or disability, thereby ensuring individual progress for all pupils.

IMPLEMENTATION

Roles and responsibilities

Governors:

- Be aware of developments in the subject
- To have a role in monitoring teaching and learning
- To be an impartial critical observer within the subject

Senior Leadership Team:

- To create an aspirational vision for science
- To provide strategy to the middle leaders
- To challenge and support middle leaders in their role
- To engage in monitoring activities

Middle Leader:

- To establish high quality teaching and learning of science
- To be the model of high quality teaching
- To raise the profile of the subject across the school
- To identify and support members of staff who need further development
- Ensure policies are being followed
- To monitor standards of teaching and learning
- To monitor and evaluate progress and attainment
- To manage resources effectively

Teachers:

- To follow policy and guidance outlined by middle leaders
- To ensure the subject is taught effectively and the content is covered as outlined in the National Curriculum
- To plan effectively using Developing Experts and the agreed lesson structure
- To promote the use of scientific vocabulary through working walls and flipcharts
- To develop own subject knowledge where needed

Support Staff:

- To develop own subject knowledge where needed
- To model the use of scientific vocabulary
- To challenge and support pupils thinking and ideas

Pupils:

- To take an active part in every lesson
- To show curiosity and interest
- Ask questions and challenge thinking
- Present their learning with pride

Parents/Carers:

- Talk to their children about what they have been learning and share their own knowledge on the subject
- Engage in home learning activities
- Explain every day scientific phenomena as potential experiences arise
- Attend school events

<u>Aspects</u>

Equal opportunities:

- All pupils, regardless of age, gender, race, religion, SEND and background have the right to access the curriculum.
- Adjustments must be made to ensure pupils with SEND can access the curriculum.

Health and safety:

- Pupils must be made aware of safety issues and, where appropriate, the reasons behind them.
- Staff must assess potential risks and seek advice from middle or senior leaders if unsure.
- The Association of Science Education Publication Be Safe 4th Edition: Health & Safety in School Science & Technology for Teachers of 3-12 Year Olds is held by middle leaders and should be used as a point of reference for issues regarding health and safety.
- Guidance can also be found at www.cleapss.org.uk
- Additional information can be found in the health and safety policy.

Safeguarding: Please see the Safeguarding policy.

Planning:

- Topics are taught in the order outlined in the curriculum overview to ensure knowledge and skills are built progressively. Sequencing must also take into account pupils' foundational knowledge in reading, writing, and mathematics, ensuring that all pupils can access and understand scientific content effectively.
- *Developing Experts* must be used to plan lessons. This scheme provides clear progression in substantive and disciplinary knowledge. Where necessary, lessons should be adapted to meet the needs of pupils, ensuring that gaps in foundational knowledge do not limit access to the curriculum.
- Teachers must identify the most appropriate teaching strategy to suit particular learning, including opportunities for pupils to read scientific texts, write coherent explanations, use accurate spelling of key vocabulary, and apply basic calculations within investigations.
- All lessons for one topic are to be planned on a single flipchart using Smart Notebook software, ensuring that vocabulary, reading opportunities, and numeracy links are explicitly planned and visible for pupils to support the development of foundational knowledge alongside scientific understanding.

All lessons follow a consistent structure to support progression and ensure effective learning:

- **Mind the Gaps** – addresses misconceptions and closes gaps from previous lessons or prior learning.
- **Know More, Remember More** – provides opportunities to practise key skills and secure fluency in current year objectives.

- **New Learning** – introduces new knowledge, skills and concepts. Teachers model accurate use of scientific vocabulary, sentence structure, and calculations so that pupils can read, write, and reason effectively within science.
- **Talk Task** – reinforces new learning through structured discussion and verbal reasoning. Pupils rehearse key vocabulary and sentence structures orally, supporting the development of coherent speech that leads to confident scientific writing.
- **Develop Learning** – deepens understanding and refines accuracy through targeted activities.
- **Independent Task** – enables pupils to practise and apply new learning independently to strengthen understanding. Pupils demonstrate their grasp of scientific ideas using clear, accurate writing, correct spelling, and appropriate calculations.
- **Plenary** – consolidates learning, checks understanding and supports reflection on progress. Teachers assess both pupils' scientific understanding and their ability to communicate it effectively through reading, writing, speaking

Teaching:

- Teaching must ensure pupils acquire a solid knowledge and understanding of key scientific concepts and skills that build on previous learning. Pupils must also have regular opportunities to apply this knowledge in meaningful contexts, supported by secure **foundational knowledge** in reading, writing, and mathematics.
- **Foundational knowledge**—including the ability to read scientific texts with understanding, write coherent explanations, spell key scientific vocabulary accurately, and perform basic calculations—is explicitly developed and applied across all science lessons. These skills enable pupils to access and communicate complex ideas with confidence.
- *Working Scientifically* specifies the understanding of the nature, processes, and methods of science for each year group. It should not be taught as a separate strand but embedded within every lesson, alongside the development of:
- **Substantive knowledge** – the facts, concepts, laws, and theories of science.
- **Disciplinary knowledge** – the skills, methods, and practices used to carry out scientific enquiry.
- Scientific enquiry should include exploring, observing over time, pattern seeking, identifying and grouping, comparative and fair testing, and researching using secondary sources. Pupils draw upon their **foundational literacy and numeracy skills** to record, analyse, and interpret their findings accurately.
- Pupils must have *first-hand* practical experiences wherever possible to enrich learning and develop both scientific and **foundational knowledge**, such as reading instructions, writing observations, and measuring accurately.
- Teaching must take into account a range of learning styles, ensuring that all pupils—including those with SEND or EAL—can access scientific learning through appropriately scaffolded reading, writing, speaking, and mathematical activities.

Organisation:

- In KS1 and KS2, there will be a weekly lesson of Science.
- To reduce demand on practical resources, classes in year groups may choose to teach science on different days.
- Resources are stored in The Science Cupboard.

Homework / Wider learning:

- Home learning with be set when appropriate.

Resources:

- Science is a resource heavy subject and therefore it is essential that all members of staff work together to maintain resources which include; equipment, materials, consumables and books.
- Resources are stored in the tower. These must be returned by a member of staff, once they are no longer needed.
- Teachers must inform middle leaders when consumables are running low.
- If a particular resource, that the school does not stock, is required for teaching, middle leaders must be informed six weeks in advance.
- Pupils need to be taught how to use equipment safely and correctly.

EYFS

Understand the World: The World (Science)

It is important that young children learn to understand and question the world around them. Children will begin to develop the scientific skills of observation, prediction, critical thinking and discussion. They will learn simple concepts by exploring animals, people, plants and objects. Where possible, they will learn from first hand experiences. Age appropriate scientific vocabulary will be modelled in context by practitioners and children will be encouraged to use these words.

Inclusion

At Stonebridge Primary we believe that all learners are of equal value and that all pupils have the potential to achieve highly and learn effectively irrespective of ethnicity, gender, disadvantage, religion and belief, race or disability. This confidence in the learning capacity of all our pupils is reflected in curriculum design and delivery.

Pupils with Special Educational Needs & Disability (SEND)

Pupils with Special Educational Needs and Disabilities(SEND) will have access to a broad and balanced curriculum through quality first teaching. Teachers will differentiate learning according to the children's needs to ensure access to the curriculum. Children identified as having SEND may in addition have additional provisions such as personalised learning, 1:1 support and a variety of resources to meet their needs. This policy should also be read in line with the school's SEND policy and School information report.

EAL learners
Pupils identified as new to the English language will be given every opportunity to acquire English so that they can access learning fully. Pupils home languages will be used to aid learning where possible and relevant alongside appropriate resources selected by staff to enable pupils to engage in a rich curriculum.

IMPACT
Assessment:

- Assessment for learning must be built into each lesson.
- Developing Experts Science lessons have an Evidence of Learning section that can support teachers in making formative assessments.

Monitoring and evaluation:

- Monitoring exercises which will aid the evaluation of teaching and learning in science will include:
  - Book scrutiny
  -Planning scrutiny
  - Lesson observation
  -Learning walks
  -Working wall check
  - Pupil voice

APPENDICES

APPENDICES

APPENDIX 1- Science teaching structure

Science at The Stonebridge School

Mind the Gap- 5 Minutes

Purpose: to close gaps from past lessons or previous years

- ☑ Everyone actively engaged for the full 5 minutes
- ☑ Focused whiteboard

Know More Remember More- 5 minutes

Purpose: practising key skills and building fluency from the current year's objectives.

Focus on fluency

- ☑ Practise skills needed for today's lesson
- ☑ Everyone actively engaged for the full 5 minutes

New Learning- max 15 minutes

Purpose: introducing new skills, terminology

- ☑ Share QfL (Questions for Learning) and Steps to Success
- ☑ Teacher models the learning
- ☑ Children answer in full sentences
- ☑ Address misconceptions immediately
- ☑ Use new vocabulary, practise new skills, or carry out investigations
- ☑ Writing Toolkit introduced in the first lesson and referred to throughout
- ☑ Teacher models the Talk Task

Talk Task- 1-3 minutes

Purpose: reinforcing new learning through verbal discussion

- ☑ Children answer in full sentences
- ☑ Use key vocabulary and toolkit terms accurately
- ☑ All children practise language and terminology orally
- ☑ No written recording expected

Develop Learning- 10 minutes

Purpose: deepening understanding and improving accuracy.

- ☑ Children answer in full sentences
- ☑ Address misconceptions immediately
- ☑ Use new vocabulary and practise the skill

Independent Task

Purpose: practising and applying new learning to develop understanding

- ☑ Children practise the skill/new learning
- ☑ Tasks are appropriately adapted for accessibility
- ☑ Appropriate challenge points and scaffolding

Plenary

Purpose: consolidating learning, checking understanding, and reflecting on progress.

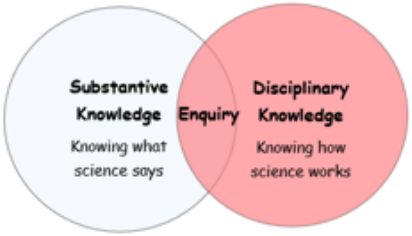
- ☑ Restate the lesson goal and encourage reflection
- ☑ Use questioning or mini-assessments to gauge understanding
- ☑ Give pupils a chance to summarise what they've learned
- ☑ Reinforce key vocabulary from the lesson
- ☑ Pose an application or challenge question to apply learning in a new context

DISCLIPINARY AND SUBSTANTIVE KNOWELDGE

ASSESSMENT: End of Unit Assessments/Do now, Know More Quizzes. Hinge Questions, Live Marking, Pupil Discussions

Substantive knowledge– *The content of science*
Substantive knowledge is the established content of science- the facts, concepts, laws and theories that make up the subject. For example, the process of photosynthesis.

Disciplinary knowledge–*The process of doing science*
Disciplinary knowledge is about the skills and practices scientists use, such as asking questions, designing experiments, analysing evidence and developing theories. It includes understanding the nature of science.



Scientific Enquiry– t*he process of investigating questions about the natural world using evidence.*
It involves:
Asking questions
- Planning and carrying out investigations
- Observing and measuring
- Recording and analysing data
- Drawing conclusions
- Communicating findings.

Scientific enquiry is how we use both disciplinary knowledge and substantive knowledge to explore, test and explain phenomena.