Shaftesbury Primary School
Growing together

Policy title	:	Science Curriculum Policy
Date approved	:	September 2021
Review date*	:	September 2024

*Please note that should any further national guidance be issued by external agencies that are relevant to this policy, it will be updated accordingly prior to the review date shown above and re-circulated.

Intent

We at Shaftesbury Primary School believe science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry, and physics. Science is a fundamental part of our lives and is vital to the world's future prosperity. Through teaching and learning, we will encourage children to be inquisitive throughout their time at the school and beyond. The science curriculum fosters a healthy curiosity in children about our universe and promotes respect for the living and nonliving. We believe science encompasses the acquisition of knowledge, concepts, skills, and positive attitudes. Throughout the schemes of work, the children will acquire and develop the key knowledge that has been identified within each unit and across each year group, as well as the application of scientific skills. We ensure that the Working Scientifically skills are built-on and developed throughout children's time at the school so that they can apply their knowledge of science when using equipment, conducting investigations, building arguments, and explaining concepts confidently. Through an appreciation of our setting and demographic, Shaftesbury places an emphasis on providing children with the opportunity, both remotely and during educational visits, to experience and immerse themselves in natural phenomena from EYFS up to Year Six.

We have a duty to ensure compliance with the revised National Curriculum and with the application of the new programmes of study and attainment targets. We understand that the National Curriculum provides pupils with an introduction to the core knowledge that they need to be educated citizens. At Shaftesbury, children benefit from a flexible science curriculum that builds on what they understand and know already. We believe that exposure, not only to previous learning but future targets, is of paramount importance to linking topics and facilitating their ongoing successes.

Our well-balanced and cross-curricular programme of study promotes the spiritual, moral, cultural, mental and physical development of pupils. Preparing them for the opportunities, responsibilities and experiences they will face in later life. At the core of the subject, is an acknowledgement that the curriculum should be moulded to the community and utilise the sense of collective identity our children can share. On occasions, our acknowledgment of social capital can help them to understand, discuss and then explain the scientific concepts that they encounter.

Aims

- To work with other Boleyn Trust schools to share best practice to improve this policy
- To ensure that all pupils develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry, and physics
- To ensure that all pupils develop understanding of the processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them
- To ensure that all pupils are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future
- To promote the teaching of oracy skills - reading, writing, and speaking about scientific concepts fluently
- To continue an ethos of sharing good practice within the school to strengthen teaching and learning

Roles and Responsibility for the Policy

The Governing Body has:

- Responsibility for the effective implementation, monitoring and evaluation of this policy
- Appointed a member of staff to be responsible for the curriculum leadership of science
- Delegated powers and responsibilities to the Headteacher to ensure all school personnel and stakeholders are aware of and comply with this policy
- Responsibility for ensuring compliance with the legal requirements of the National Curriculum
- Responsibility for ensuring that the school complies with all equalities legislation
- Responsibility for ensuring funding is in place to support this policy.
- Responsibility for ensuring this policy and all linked policies is maintained and updated regularly
- Responsibility for ensuring all policies are made available to parents;
- The responsibility of involving the House Captains and House Representatives in the development, approval, implementation, and review of this policy.
- Nominated a link governor to visit the school regularly, to liaise with the Headteacher and the School Leader for Science and to report back to the Governing Body.

The Link Governor will:

- Annually report to the Governing Body on the success and development of this policy
- Work closely with the Headteacher and the School Leader for Science

- Ensure this policy and other linked policies are up to date
- Ensure that everyone connected with the school is aware of this policy.
- Attend training related to this policy

The Headteacher and the Senior Leadership Team will:

- Annually report to the Governing Body on the success and development of this policy
- Ensure all school personnel are aware of and comply with this policy
- Work closely with the School Leader for Science and the link governor
- Ensure compliance with the legal requirements of the National Curriculum
- Encourage parents to take an active role in curriculum development
- Provide leadership and vision in respect of equality
- Provide guidance, support and training to all staff
- Monitor the effectiveness of this policy by:
    - Observing teaching and learning
    - Monitoring planning and pupils' exercise books
    - Discussions with pupils and the Junior Leadership Team

Role of the Science Lead

It is the responsibility of the subject leader to monitor the standards of children's work at Shaftesbury. The Science Lead is also responsible for supporting colleagues in their teaching, for being informed about current developments in the subject, and for providing a strategic lead and direction for science in the school. They will monitor the budget, resource the schemes of work, recommend visits and workshops to support learning. The subject leader has specially-allocated time for fulfilling the task of reviewing samples of children's work, training, liaising with other subject leaders from other schools and organising science week.

The Science Lead will:

- Lead the development of this policy throughout the school
- Work closely with the Headteacher, the nominated governor and SENCO
- Be accountable for standards in science; - Monitor standards by:
- Auditing the subject area
- Review medium term planning
- Monitoring teachers planning

- Lesson observations
- Scrutinising children's work
- Discussions with pupils
- Learning walks
- Ensure continuity and progression throughout the school
- Devise a subject improvement plan
- Provide guidance and support to all staff
- Provide training for all staff on induction and when the need arises regarding
- Attend appropriate and relevant INSET
- Keep up to date with new developments
- Undertake an annual audit and stock take of resources
- Purchase new resources when required and in preparation for the new academic year; - Manage the subject budget effectively
- Undertake risk assessments when required
- Devise medium term planning

Teachers will:

- Comply with all aspects of this policy
- Report any concerns they have on any aspect of the school community
- Work closely with the School Leader for Science to develop this policy
- Devise medium- and short-term planning
- Plan differentiated lessons which are interactive, engaging and of a good pace - Have high expectations for all children and will provide work that will challenge and extend them
- Assess, record and report on the development, progress, and attainment of pupils
- Achieve high standards
- Celebrate the success of pupils in lessons
- Implement the school's equalities policy and schemes
- Report and deal with all incidents of discrimination
- Attend appropriate training sessions on equality

Pupils will:

- Be aware of and comply with this policy
- Be encouraged to work in partnership with the school by making decisions and

exercising choice in relation to their educational programme

- Listen carefully to all instructions given by the teacher
- Ask for further help if they do not understand
- Participate fully in all lessons
- Participate in discussions concerning progress and attainment;
- Treat others, their work and equipment with respect;
- Adhere to the School Rules to ensure the smooth running of the school
- Liaise with the Junior Leadership Team
- Take part in questionnaires and surveys

The Junior Leadership Team will be involved in:

- Arranging and preparing Science week and other events
- Voting on and deciding which activities and events take place during science week
- Organising discussions to gauge the thoughts of all pupils about the teaching of science

Parents/Carers will:

- Be aware of and comply with this policy
- Be encouraged to take an active role in the life of the school by attending:
  Parents' and open evenings
  Parent-teacher consultations

- Curriculum development workshops
- Be encouraged to work in school as volunteers
- Be encouraged to respond to curriculum information newsletter
- Be informed via termly newsletters of their child's topics
- Asked to provide suggestions and ideas for improving science
- Be invited to make presentations to pupils on aspects of science
- Join the school in celebrating success of their child's learning

Policy Procedure

The direction set out in this policy will be used to guide the planning, delivery and the teaching of the science curriculum across the school.

Teaching and Learning Style

Teachers create a positive attitude to science learning within their classrooms and reinforce an

expectation that all pupils are capable of achieving high standards in science. Our whole school approach to the teaching and learning of science involves the following:

- Science will be taught in planned and arranged schemes of work by the class teacher, to have a skills-based approach. This is a strategy to enable the achievement of a greater depth of knowledge.

- Through our planning, we involve problem solving opportunities that allow children to apply their knowledge, and find out answers for themselves. Children are encouraged to ask their own questions and be given opportunities to use their scientific skills and research to discover the answers. This curiosity is celebrated within the classroom. Planning involves teachers creating engaging lessons, often involving high-quality physical resources to aid understanding of conceptual knowledge. Teachers use precise questioning in class to test conceptual knowledge and skills, and assess pupils regularly to identify those children with gaps in learning, so that all pupils keep up.

- We build upon the knowledge and skill development of the previous years. As the children's knowledge and understanding increases, and they become more proficient in selecting, using scientific equipment, collating and interpreting results, they become increasingly confident in their growing ability to come to conclusions based on real evidence.

- Scientific skills are embedded into lessons to ensure these skills are being developed throughout the children's school career and new vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years, in-keeping with the topics.

- Teachers demonstrate how to use scientific equipment, and the various Working Scientifically skills in order to embed scientific understanding. Teachers find opportunities to develop children's understanding of their surroundings by accessing outdoor learning and educational visits with experts.

- Children are offered a wide range of extra-curricular activities, visits, trips and visitors to complement and broaden the curriculum. These are purposeful and link with the knowledge being taught in class.

- Annual and regular events, such as Science Week, Farmer Time and The Crest Awards provide broader provision and the acquisition and application of knowledge and skills. These events often involve families and the wider community.

Curriculum Planning and Organisation

Teachers collaborate on the planning of the subject to ensure parity in provision and to share expertise. Curriculum planning is managed in three phases namely:

Long Term Planning

- Any changes to the science curriculum are considered before revising the current Shaftesbury framework.

- Details what is to be taught in each topic over the year (curriculum map)
- Provides overall objectives for each year group for the whole year
- Is developed by the Subject Leader for Science in conjunction with the school's team of middle and senior leaders.

Medium Term Planning

- A balanced distribution of work is undertaken across each term, with theory and practical elements of science being adhered to.
- A procedural approach to the MTPs ensures that ideas for practical engagement and investigations are easy to follow and plan for.
- Opportunities for cross curricular links are specified.
- A comprehensive list of resources is provided.
- The subject is organised into half-termly sections.
- Prior and future learning is explicitly outlined to assist with sequencing units of study.

Short Term Planning

- Details the subject curriculum over the week
- Plans lessons in detail with specific class objectives

Science Curriculum Map

Year Group	Autumn One	Autumn Two	Spring One	Spring Two	Summer One	Summer Two
Year One	Animals including humans		Seasonal change	Plants	Light	Everyday materials
Year Two	Animals including humans	Everyday materials	Sound	Plants	All living things	Forces

Year Three	Animals including humans	Rocks	Forces and magnets	Forces and magnets	Plants	Light
Year Four	Animals including humans	Sound	States of matter	States of matter	All living things	Electricity
Year Five	Earth and Space	Properties and changes of materials	All living things (life cycles)	Forces	Animals including humans	Forces
Year Six	Animals including humans	Evolution and Inheritance	Electricity	Electricity	Light	Living things and their habitats

Inclusion

We believe that we are an educationally inclusive school as we are concerned about the teaching and learning, achievements, attitudes and well-being of all our pupils. We aim to provide places for all pupils who express a preference to join this school.
We work hard to offer equality of opportunity and diversity to all groups of pupils within school such as children:

- From both sexes
- Who have Special Educational Needs
- Who are looked after
- From minority faiths, ethnicities, travellers, asylum seekers, refugees;
- Who are gifted and talented
- Who are at risk of disaffection
- Who are young carers
- Who are sick
- Who have behavioural, emotional and social needs
- From families who are under stress

At Shaftesbury, we believe we have a duty to ensure that all children have equal rights to the opportunities offered by the science curriculum and that all children will be encouraged to fulfil their potential in their academic, physical, and creative achievements.

We want to give all children the right to access high quality educational experiences, to take part in a broad and balanced curriculum and to be part of the social life of the school. We recognise that within the school we have children who can work beyond the curriculum.

We believe that:

- Greater Depth children demonstrate a higher ability to exceed age related expectations than average for the class and often require differentiated tasks and opportunities to learn through challenges.

We have an even greater obligation to plan and deliver well-structured lessons with appropriate assessment plus ambitious targets for pupils who have low levels of prior attainment or come from disadvantaged backgrounds. Also, we have a duty to cater for pupils whose first language is not English by planning teaching opportunities to help them develop their English and to gain full access to the National Curriculum.

Differentiation

Differentiation is best defined as 'the process by which differences between learners are accommodated so that all students in a group have the best possible chance of learning.' (Geoff Petty).

The main purpose of differentiation is to challenge and raise standards of learning by ensuring that curriculum objectives are accessible to all our children despite their backgrounds or abilities. We see differentiation as a form of integration and not exclusion.

Differentiation must reflect the learning objective and can be achieved in a variety of ways either by task, by support or by outcome and should be chosen by fitness for purpose. We want all children to achieve success, therefore we will ensure they are given differentiated tasks and a ‘toolbox’ that matches their level of attainment, so that they can demonstrate successfully what they know, understand, and can do.

The main feature of effective differentiation is good planning resulting in effective teaching and learning with children making good progress. Also, we expect to see in all classes interested, well-motivated children responding to challenges, children working productively on task and being aware of their own progression.

Spoken language

The national curriculum for science reflects the importance of spoken language in pupils’ development across the whole curriculum – cognitively, socially and linguistically. At Shaftesbury, science lessons provide a quality and variety of subject specific language to enable the development of children’s oracy skills and accurate use of scientific vocabulary and their ability to articulate scientific concepts clearly and precisely. They are encouraged and assisted in making their thinking clear, both to themselves and others, and teachers ensure that pupils build secure foundations by using discussion to probe misconceptions.

Special Educational Needs

In school we aim to meet the needs of all our children by differentiation in our science planning and in providing a variety of approaches and tasks appropriate to ability levels. This involves providing opportunities for SEND children to complete their own projects, with support, to develop speech and language skills, as well as scientific skills and knowledge. This will enable children with learning and/or physical difficulties to take an active part in scientific learning and practical activities and investigations and to achieve the goals they have been set. Some children will require closer supervision and more adult support to allow them to progress whilst more able children will be extended through differentiated activities. By being given enhancing and enriching activities, more able children will be able to progress to a higher level of knowledge and understanding appropriate

to their abilities. Teachers will use the school's inclusion planning key to ensure that a range of strategies are used which include and motivate all learners, ensuring that optimum progress is made throughout each part of the lesson.

Assessment

Children's progress is continually monitored throughout their time at Shaftesbury Primary School and is used to inform future teaching and learning. By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study as set out in the National Curriculum. These are set out as statutory requirements. We also draw on the non-statutory requirements to extend our children and provide an appropriate level of challenge. Children receive effective feedback through teacher assessment, both orally and through written feedback in line with the success criteria. Children are guided towards achievement of the main objective through the use of process based 'steps to success', provided by and explained by the teacher. Children will have these to refer to in the lesson, where they will be evident in their books and used to identify areas of difficulty by children and teachers when reviewing and assessing work. Assessment for learning is continuous throughout the planning, teaching and learning cycle. However, children are more formally assessed half termly in KS1 and KS2 using end of year target cards. Children have autonomy over their progress by completing assessment questions that are applicable to their targets for that particular scheme of work. These outcomes allow teachers to 'take action' to bridge gaps in learning, where necessary.

Other assessment strategies at Shaftesbury include:

● Observing children at work, individually, in pairs, in a group, and in classes

● Questioning, talking, and listening to children's responses and reading recorded outcomes

Monitoring & Review of the Subject

Monitoring of standards of children's work and the quality of teaching is the responsibility of the Subject Leader for Science supported by the Headteacher and the SLT.

Standards will be monitored by:

- Moderating pupil's work
- Lesson observations
- Pupil discussions
- Scrutiny of planning
- Learning Walks

Contribution of the Subject to other Areas of the Curriculum

Science contributes to many subjects within the primary curriculum and every opportunity is sought to draw scientific experience out of a wide range of activities. This allows children to begin to use and apply scientific skills and knowledge in real contexts. Through applying a range of scientific enquiry skills in the classroom, prominent links are made with Geography, Computing and

Mathematics. References to cross curricular links are explicitly made in the Medium-Term Plans provided by the Science Lead. This allows teachers the opportunity to consider how they can be implemented before delivering lessons.

Resources

The school has a full range of resources to support the teaching of science throughout all year groups. Resources are revised and replenished when the need arises, with teachers being made aware of what they need through the Medium-Term Plans. This ensures organisation and confidence amongst staff. Furthermore, an annual stock take and audit is undertaken by the Science Lead in the summer term in preparation for the next academic year. We have sufficient, high-quality science resources to aid and support the teaching of all units and topics taught, from EYFS to Y6. We keep these in a science cupboard, where they will be labelled and easily accessible to all staff. EYFS have a range of resources kept in classes, for simple access for children during exploration. Furthermore, the library contains a good supply of science topic books to support children's individual research.

Raising Awareness of this Policy

We will raise awareness of this policy via:

- The school website
- The Staff Handbook
- Meetings with parents such as introductory, transition, parent-teacher consultations, and periodic curriculum workshops
- School events
- Meetings with school personnel
- Communications with home such as weekly newsletters and of end of half term newsletters

Training

Shaftesbury Primary School will provide opportunities for all employees to have access to the information, instruction, supervision, and training required to enable them to discharge their responsibilities. In addition, the Science Subject Lead is invited to STEM network meetings hosted by The Boleyn Trust Academy, that take place on a termly basis. These offer the opportunity for best practice to be shared, assessment updates to be given and the progression of skills to be discussed. Guest speakers facilitate the meetings and provide ideas and initiatives that can be practically implemented into the Shaftesbury curriculum.

Equality Impact Assessment

Under the Equality Act 2010 we have a duty not to discriminate against people based on their age,

disability, gender, gender identity, pregnancy or maternity, race, religion or belief and sexual orientation. As such, we believe that it is in line with the Equality Act 2010 as it is fair, it does not prioritise or disadvantage any pupil and it helps to promote equality at this school.

Health and Safety

Health and Safety Safe working practices are an integral part of all Science activities. All staff are aware of safe and correct handling of tools, materials, and equipment. The teaching staff demonstrate to pupils how to work safely and ensure that all children using equipment are properly supervised.

Monitoring the Effectiveness of the Policy

The practical application of this policy will be reviewed annually or when the need arises by the Science Lead and the Senior Leadership Team.