Science Policy

Brierley CE (VC) Primary School

Approved by:	Governing Body	**Date:**	
Last reviewed on:	September 2024		
Next review due by:	September 2025		

Contents

1. Purpose of the policy

This policy reflects the aims and values of Brierley School. It ensures all stakeholders, including staff, governors, parents and pupils, are working towards the same goals.

Ensure you consider the potential audience for your policy and what information they will want. Your audience may include teaching and non-teaching staff, governors, parents and Ofsted inspectors.

The purpose of this policy is to:

- Set out a framework for all teaching and non-teaching staff, giving guidance on planning, teaching and assessment
- Demonstrate adherence to the National Curriculum objectives and guidelines (if appropriate)
- Provide clear information to parents and carers about what their children will be taught
- Allow the governing board to monitor the curriculum
- Provide Ofsted inspectors with evidence of curriculum planning and implementation

2. Subject vison

In Science our vision is to give all children a strong understanding of the world around them. They will be able to discover how the world works and our place, impact, roles and responsibilities within our environment. Our children are encouraged to ask questions and apply their growing scientific knowledge to investigate and learn more. The children are able to develop a systematic and logical way of working and are able to reflect on investigations and apply their growing knowledge. Science allows children to be inquisitive in a safe environment. It will help develop knowledge rich, confident, articulate and investigative learners.

3. Aims and outcomes

This policy is set out to ensure consistency in the teaching and learning within Science across the school in order to ensure pupils are equipped with the ability to explore, discover and investigate. These first hand experiences will in turn enable them to understand more about the world they live in. We aim to ensure such experiences will be appropriate, relevant, challenging and satisfy the children's curiosity.

We aim to:

• build on the children's natural curiosity.

• teach the children scientific knowledge.

• teach the children scientific skills.

• stimulate them to investigate, question and develop attitudes of science.

• teach them to communicate ideas using appropriate scientific language.

• teach them how to evaluate their findings and suggest explanations.

4. Teaching and learning

In ensuring high standards of teaching and learning in science, we implement a curriculum that is progressive throughout the whole school.

Planning for science is a process in which all teachers are involved to ensure that the school gives full coverage of, 'The National Curriculum programmes of study for Science 2014' and, 'Understanding of the World' in the Early Years Foundation Stage. Science teaching at Brierley School involves adapting and extending the curriculum to match all pupils' needs. Where possible, science is linked to class projects. Teachers plan the learning journey together to ensure full coverage and progression of the science curriculum is achieved. Teachers also plan to suit their children's interests, current events, their own teaching style, the use of any support staff and the resources available.

We ensure that all children are provided with rich learning experiences that aim to:

- Prepare our children for life in an increasingly scientific and technological world today and in the future.
- Help our children acquire a growing understanding of the nature, processes and methods of scientific ideas.
- Help develop and extend our children's scientific concept of their world.
- Build on our children's natural curiosity and developing a scientific approach to problems.
- Encouraging open-mindedness, self-assessment, perseverance and developing the skills of 3 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.
- Make links between science and other subjects.

5. Curriculum overview

The PKC science curriculum will lay the foundation for pupils to understand what the discipline of science tells us about the world. We aim to **ignite children's love for science** by showing them what fascinating things the human race has learned about the world. Within our carefully planned curriculum, children are introduced to including the inner workings of the human body, animals and the environments they live in, plants and their features, forces of nature, what lies beyond the visible world. Children are taught to **apply their knowledge and conduct their own scientific enquiries** to answer questions, working scientifically to develop essential skills in science.

Our science curriculum builds knowledge incrementally year on year to revisit and build upon children's knowledge and understanding of key concepts. Pupils also **study the lives and achievements of a diverse range of scientists** including Lewis Howard Latimer, Thomas Edison, Jabir ibn Hayyan. Their disciplinary knowledge will flourish over time enabling them to see the importance of science as a subject and how it translates into the world of research and work, what scientists do and how they impact upon our lives.

5.1 Early Years Foundation Stage (EYFS)

Science at Foundation Stage is covered in the **'Understanding the World'** area ofthe EYFS Curriculum. It is introduced indirectly through activities that encourage every child to explore, problem solve, observe, predict, think, make decisions and talk about the world around them. During their first year at school our children will explore creatures, people, plants and objects in their natural environments. They will observe and manipulate objects and materials to identify differences and similarities. They will also learn to use their senses, feeling dough or listening to sounds in the environment, such as sirens or farm animals. They will make observations of animals and plants and explain why some things occur and talk about changes. Children will be encouraged to ask questions about why things happen and how things work. Children will also be asked questions about what they think will happen to help them communicate, plan, investigate, record and evaluate findings.

5.2 Key Stage (KS) 1

The Year 1 science curriculum builds on foundational learning from Early Years to further explain the world around us.

Our science curriculum introduces pupils to substantive and disciplinary knowledge within these units:

- The human body
- Animals and their needs
- Seasons and weather
- Taking care of the Earth
- Plants
- Materials and magnets

In Year 2, our science curriculum introduces pupils to substantive and disciplinary knowledge within these units:

- The human body
- Living things and their environments
- Electricity
- Plants
- Materials and matter
- Astronomy

5.3 Key Stage (KS) 2

In LKS2, our Year 3 and 4 science aims to both deepen and broaden children's scientific view of the world around them and develop ideas surrounding behaviour of natural phenomena such as light, magnetism and forces. Our curriculum encourages pupils to develop their scientific enquiry skills including testing and developing ideas about everyday phenomena, sorting, noticing patterns, drawing conclusions, and communicating their understanding. Deepening knowledge in key areas that are studied each year, such as the Human Body and Plants, helps children to build on their prior learning, learning more and remembering more as they work through the science curriculum.

In UPKS2 our Year 5 and 6 science curriculum aims to both deepen and broaden children's scientific knowledge and understanding. Children will build on their prior learning, reconnecting to ideas and concepts they learned in previous years. This enables children to remember key information, to think deeply about it and to add to their developing schema over time.

Our curriculum will deepen children's understanding of scientific enquiry through asking questions, observing, noticing patterns, describing relationships and interactions, and using evidence to draw conclusions. They will encounter scientists as they journey through the curriculum, learning how their work contributed to the discipline of science and how our scientific understanding has changed over time.

- The human body
- Cycles in nature
- Light
- Plants
- Rocks
- Forces and magnets

Year 4 untis:

- The human body
- Classification of Plants and Animals
- Ecology
- Sound
- States of Matter and the Water Cycle
- Electricity

Year 5 units:

- The human body
- Materials
- Living things
- Forces
- Astronomy
- Meteorology

Year 6 units:

- The Human Body
- Classification of Living Things
- Electricity
- Light
- Reproduction
- Evolution

5.4 Programmes of study

	Autumn term	Spring term	Summer term
EYFS	Woodland Animals Body and Senses Forces Changing States of Matter	Earth and Space Growing and Changing (Plants, Animals and Humans)	Summer - Sun Safety Changing States of Matter
Year 1	The Human Body Animals and their needs	Seasons and weathers Taking Care of the Earth	Plants Materials and Magnets
Year 2	The Human Body	Electricity	Materials and Matter

	Living Things in their Environments	Plants	Astronomy
Year 3	The Human Body Cycles in Nature	Light Plants	Rocks Forces and Magnets
Year 4	Human Body Classification of plants and animals	Ecology Sound	States of Matter Electricity
Year 5	The Human Body Materials	Living Things and their Habitats Forces	Astronomy Meteorology
Year 6	The Human Body Classification of Living Things	Electricity Light	Reproduction Evolution

6. Cross-curricular links

We see ICT and Mathematics as an important tool in Science. Children research, communicate, collect and interrogate data in a variety of ways.

Science shares links with the following subjects:

- English: development of literacy skills through reading and writing
- Maths: analysing numerical data and understanding and interpreting data
- ICT: use of the internet for research and analysing numerical data and understanding and interpreting data

Spiritual, moral, social and cultural (SMSC):

Spiritual Education encourages pupils to reflect on the wonder of the natural world. They are encouraged to ask questions about how living things rely on and contribute to their environment. This promotes openness and confidence to voice an opinion.The above list is not exhaustive and should be adapted to suit your specific context.

Moral education involves pupils having awareness of the ways that science and technology can affect society and the environment. Pupils develop an interest in investigating and offering reasoned views about moral issues. Pupils are given the chance to consider the wonder of the natural world and the inventions, which have made the world a better place. Teaching allows opportunities for pupils to speculate about how science has both a positive and sometimes a negative result on their own environment.

Social Education

Social education within science involves students working within a group, listening and respecting the views of all the members. They need to work cooperatively within practical activities. Often they will have to show respect for differing opinions. Through learning about our environment, pupils will be exploring the social dimension of scientific advances and energy processes with time to reflect upon their impact.

7. Assessment and recording

7.1 Assessment

Brierley uses assessment to enable staff to understand what pupils have learnt before, what they need to learn now and what they will learn next.

Formative assessment

All lessons have clear learning objectives, which are shared and reviewed with the pupils effectively. A variety of strategies, including questioning, discussion and marking, are used to assess progress. The information is used to identify what is taught next. The subject of Science will be an on-going assessment of the children's skills, knowledge

and understanding. Teacher assessment is used termly and to record final levels at the end of Key stage One. In the Early Years the Early Learning Goal is used at the end of the year and is based on professional judgement and whether there are concerns or no concerns.

Summative assessment
Summative assessment is completed termly, based on the historical skills that the medium-term plan requires as a key focus.

At the end of each school term, pupils will be assessed within 1 of the following bands:

- Pre-Key Stage (PKS)
- Working Towards the curriculum (WT)
- Working at Expected (EXP)
- Working at Greater depth (GDS)

Marking
Children receive regular feedback and marking follows the school's marking policy.

7.2 Recording

In science, pupils in Year 2 and KS2 will record their learning in the following ways:

- Science books

This may take the form of photographs, pictures, notes or written work, and may be worksheet-based or fully independent.

Floor Books will be used in FS2 and Year 1 to recording teaching and learning in science. This will include: photographs, pupil voice and examples of written and pictorial work.

8. Resources

8.1 Textbooks and other equipment

- PKC
- Science apparatus appropriate to the task
- Science lab coats
- Science IWB slides

8.2 External speakers, local museums, trips

At Brierley CE Primary School we acknowledge the great value of educational visits in broadening and enhancing both the learning and social experience of young people. Children should go on a variety of school visits whilst they are pupils at Brierley. Ideally visits will support the work in the classroom and should be as often as practically possible. For example, children in Year 1 have visited the Botanical Gardens in Sheffield to recap and reinforce learning from Summer 1 Plants units and children in Year 2 visited the RSPB Old Moor as part of their unit of work on Living Things and their Environment. Throughout the academic year, we also have science days that are related to specific scientists, themes or current scientific topics happening in the world.

Roles and responsibilities

9.1 Headteacher

The headteacher at our school will:

- Support the subject leader but also hold them to account for the effectiveness of the subject

- Support staff through the provision of training and resources
- Monitor the planning and delivery of the subject
- Ensure the requirements of the National Curriculum are met
- Ensure this policy is reviewed according to the timescales set out

9.2 Subject leader

The Science leader is responsible for providing an overview of the subject across the school to inform staff planning and to offer advice in the ways in which the curriculum can be delivered in an effective and engaging way. They should have an up-to-date knowledge of the subject requirements and ensure that these are met across the school, as well as having an overview of assessment. They are responsible for ensuring that an overview of the subject is available on the school website. The Science leader also has a sound knowledge of the resources, which are available within school, and ensures that resources are replenished and updated as necessary. The Science leader is responsible for the planning and implementation of any subject specific events, which are ran in the school.

The governor for Science is responsible for ensuring there is a good professional dialogue with the subject leader throughout the school year.

9.3 Link governor

The link governor responsible for Deb Shorthouse at our school will:

- Monitor the impact of the subject across the school and on pupils
- Monitor teacher workload and professional development
- Ensure subject action plans are suitable
- Monitor the quality of resources
- Keep track of pupil and parent engagement with the subject
- Keep up to date with the curriculum (what's taught, why it's taught, and how it's taught)

9.4 Classroom teacher

Classroom teachers at our school will:

- Teach and assess the subject according to the principles laid out in this policy
- Report to the subject leader
- Maintain subject knowledge and appropriate CPD

9.5 Parents

The parent community at our school will:

- Make sure their children are prepared for learning
- Monitor the completion of homework

10. Inclusion

Teachers set high expectations for all pupils in Brierley School. They will use appropriate assessment to set ambitious targets and plan challenging work for all groups, including:

- More able pupils
- Pupils with low prior attainment
- Pupils from disadvantaged backgrounds

- Pupils with special educational needs (SEN)
- Pupils with English as an additional language (EAL)

At Brierley we are committed to equality and inclusion regardless of ability. In accordance with the Special Educational Needs and Disabilities Policy, children with special educational needs or disabilities are included in all lessons. Class Teachers are expected to ensure that appropriate support or adjustments are in place where needed, in accordance with support plans or Educational Health and Care plans. This could include the use of visual prompts or PECS where appropriate, breaking down tasks into smaller steps, the use of alternative recording methods or additional adult support. Children with special educational needs or disabilities must be given every chance to demonstrate their knowledge in order to reach their full potential in Science.

Teachers will also take account of the needs of pupils whose first language is not English. Lessons will be planned so that teaching opportunities help pupils to develop their English, and to support pupils to take part in Science..

Further information can be found in our statement of equality information and objectives, and in our SEN policy and information report.

11. Links to other policies

This subject policy links to the following policies and procedures:

- Curriculum policy
- Assessment policy
- Marking policy

12. Monitoring and review

This policy will be reviewed by staff and governors every year.