Science Policy

25-26

School Vision

Our vision for Valour Academy is that all children will feel loved, happy, and safe.

We will provide each child with many and varied opportunities to develop their character to feel accepted; to develop a sense of belonging; to be driven and resilient and to be inspired and be inspiring.

Rationale

At Beech Hill, we believe that Science is a vital component of the National curriculum and recognise its importance in preparing our children for life in an increasingly scientific and technological world.

Science encompasses the acquisition of knowledge, vocabulary, concepts, skills, and positive attitudes. Science promotes communication in a specific and precise language involving mathematical and logical thinking. It allows children to develop ways of finding out for themselves and gives them practice in problem solving.

Science in our school is about developing children's ideas and ways of working to enable them to make sense of the world in which they live through using investigations to answer their own questions and thereby deepening their understanding of a wide range of scientific ideas. It promotes respect for the living and non- living. We believe that science should sustain and develop the natural curiosity of children and encourage a sense of awe, wonder and enthusiasm about the world around them.

STEM subjects play an important role in the education of our children. In science, we study a range of science careers identifying the skills and attitudes involved with the aim of raising the children's aspirations to see science as a potential career.

We believe that a broad and balanced science education is the entitlement of all our children, regardless of ethnic origin, gender, aptitude, or disability.

Aims

- At Beech Hill, we aim for all our children to become scientifically literate by developing their investigational skills through structured scientific enquiry encompassing all five different types of investigations (research using secondary sources, observing change over time, comparative/fair testing, pattern seeking and identifying, classifying and grouping)
- We aim for every child to develop within their capabilities a growing deep understanding of scientific ideas and knowledge encouraging them to aim high and take pride in their achievements.
- We aim to develop the ability of children to use their knowledge to understand and make decisions in an increasingly scientific and technological world and express their ideas confidently using appropriate scientific language.
- We aim to encourage positive attitudes by providing our children with an enjoyable experience of science through imaginative, purposeful, well managed lessons, so they will develop a deep and lasting interest.

- We aim to build our children's self -confidence to enable them to become independent learners and develop their social skills by encouraging them to work co-operatively with others.
- We aim to encourage scientific attitudes such as open-mindedness, self-assessment, perseverance, and responsibility enabling the children to develop a scientific approach to problems.

Our vision of science at Beech Hill. (as agreed by all staff. November, 2019)

At Beech Hill, our vision in science is to encourage the natural curiosity in children so that they can ask questions that fuel explorations and investigations about the universe we live in. Importance is placed on children learning practically through first-hand investigations so they can "see" science happening. Our science curriculum offers a broad range of stimulating and challenging experiences designed to provide all children with a clear progression of scientific skills, language, and knowledge. This will equip them to ask questions, understand and make decisions in an increasingly scientific world.
To achieve this, we will.

- Provide first-hand experiences to develop curiosity and scientific understanding including the use of visitors to the school and external visits.
- Plan our lesson based on a clear progression of knowledge, language, and skills.
- Ask questions, providing the children with opportunities to ask their own.
- Address any misconceptions as they occur.
- Use scientific vocabulary to explain our ideas and expect children to use it correctly in their own explanations.
- Provide regular opportunities for children to identify scientific careers that are available to them.

STATUTORY REQUIREMENTS

Statutory requirements for the teaching and learning of Science are laid out in the Revised National Curriculum Science: Programme of Study (2013) and in the Revised EYFS framework (2021)

In the Foundation Stage (Nursery and Reception) children should be given opportunities to:

- Make sense of their physical world through opportunities to explore, observe and find out about people, places, technology, and the environment.
- Gather information and communicate their views.
- Develop their natural curiosity about the world starting with themselves and places nearest to them.
- Develop an increasing awareness of their surroundings.

Whilst in the Foundation stage the children learn about similarities and differences between themselves and others. They explore objects, materials and living things at first hand, comparing, and contrasting their features. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes. They recognise that a range of technology is used in places such as homes and schools and can select and use technology for particular purposes.
"In the early years, pupils are introduced to a wide-ranging vocabulary that categorises and describes the natural world. These words are not too technical but provide the 'seeds' for developing scientific concepts that will be built on in later years." (Ofsted research review 2021)

Key stage 1

The principal focus of science teaching in key stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly constructed world around them. They are encouraged to be curious and ask questions about what they notice. They develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways.

Lower key stage 2

The principal focus of science teaching in lower key stage 2 is to enable pupils to broaden their scientific view of the world around them. They do this through exploring, talking about, testing, and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships, and interactions. They ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping, and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. They draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out

Upper Key stage 2

The principal focus of science teaching in upper key stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analyzing functions, relationships, and interactions more systematically. At upper key stage 2, they encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They also begin to recognise that scientific ideas change and develop over time. They should be able to select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping, and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information. They draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings

SUBJECT ORGANISATION

The new National curriculum is organized into 3 sections: Key stage one, Lower Key stage two and Upper Key stage 2. Within these sections there is a working scientifically unit which is on-going throughout the subject areas in that stage. There are specific subject areas for each year group to study. These units are structured, so they build upon previous units and provide the basis for future learning.
Each year group follows specified units as outlined in the National Curriculum programme of study. Working scientifically is seen as the cornerstone of these units in order to develop the children's science skills and deepen their understanding. Each of these units has its own

knowledge organiser which clearly indicates the key skills and knowledge to be taught. Within these knowledge organisers scientific enquiry symbols are used and working scientifically objectives.

THE USE OF ICT

Opportunities to use ICT to support teaching and learning in Science will be planned for and used as appropriate. Specific resources such as data loggers are available for the children to use to enhance their scientific learning.

ASSESSMENT AND TARGET SETTING

Science based activities and experiences within the **Foundation Stage** will be recorded and assessed using the Foundation Stage Profile. Additionally, there are individual profiles of achievements. Notes, work samples and photographs form the basis of both these assessments.
As teachers, we are constantly using formative assessments in science to inform our teaching on a regular basis. Each lesson starts with a 'Questions of the week' which is used to assess children's understanding of the lesson taught previously, these range from simple pictures to scientific reasoning in upper key stage 2. 'Flash back 4's' are also used to recap previous learning both within a year group and year groups previously.
End of unit quizzes are used as formative assessment to gauge children's understanding of what has been taught.
We mark each piece of work positively and indicate how well the children have achieved their learning objective.
Children are encouraged to reflect on their own work in the classroom and think critically about what they have achieved.
TAP's assessment are used throughout key stages to assess how the children are working scientifically. These are passed up with the children as they move through the school.
The children's progress in each unit and working scientifically is clearly recorded throughout the year and an overall level in Science is recorded on the annual report to parents.
Data is recording using Insight, this is a working document where levels can not only be imputed but comments on specific children added.

INCLUSION

We aim to provide for all children so that they achieve as highly as they can in Science according to their individual abilities. We will identify which pupils or groups of pupils are under-achieving and take steps to improve their attainment. We aim to include all S.E.N. children as fully as possible in the class science lessons. Science activities can be differentiated by task, outcome or in terms of support or additional resources to meet the needs of these children. Flexible groupings may also be used so that the children can work in mixed ability groups supporting each other in their learning. Teachers use differentiated questioning to target these pupils allowing them to make a valuable contribution to the lessons. Alternative means e.g., photographs, pre prepared tables are also used to aid these children in recording their findings. Tasks can be broken down into small steps, giving children achievable goals.

More able children are identified via science assessment grids. They are provided with opportunities to promote and develop their learning further. More able pupils are taught within their own class. Their learning is extended by careful differentiation of the main activity or by providing suitable extension or problem-solving activities to develop their thinking further. These can take the form of open-ended tasks and opportunities for further research and more challenging study. We aim to ensure all pupils are challenged to their full ability in every science lesson.

EQUAL OPPORTUNITIES

At Beech Hill, we are committed to ensuring that all our children have the same opportunity to become scientific regardless of gender, race, class, physical disabilities or religion. (Our science lessons are taught within the school's equal opportunities policy.) We carefully consider the delivery, content and resources used in science to fulfil this aim.

SOCIAL COHESION

Where appropriate links are made in Science and cross curricular subjects to help children learn about and understand how the local, regional, national and international community in which they live has changed and developed into the global community in which we all now live. We aim to teach science in a broad global and historical context, using the widest possible perspective and including the contributions of people of many different backgrounds.

ROLE OF SUBJECT LEADER:

The Subject Leader is responsible for improving the standards of teaching and learning in Science through:

- Monitoring and evaluating Science: -
    1. pupil progress.
    2. audits of planning and work which take place annually. All audits are followed up with feedback to individual teachers
    3. lesson observations
    4. Pupil voice surveys.

- Taking the lead in policy development
- Auditing and supporting colleagues in their CPD
- Purchasing and organising resources
- Keeping up to date with recent Science developments
- Liaising with outside agencies and other schools.
- Provide advice and assistance to all staff when requested, to support the teaching of Science throughout the school.

HEALTH AND SAFETY

Health and safety are of paramount importance in science and as teachers, we ensure children are taught to use equipment in a safe and responsible manner. We use the guidelines outlined in the Be Safe booklet produced by the ASE. (A copy is kept in the science cupboard.)
When engaged in field work children are expected to behave in a considerate, responsible manner showing respect for other people and the environment.
For outside visits there will always be more adult support and qualified staff in First Aid. Risk assessments will be completed for visits outside of school premises.
Staff also have access to CLEAPSS.

CONCLUSION:

This policy also needs to be in line with other school polices and therefore should be read in conjunction with the following school policies:
Assessment and Record Keeping
Responding to pupils' work / Feedback / Marking policy
Special Educational Needs Policy
ICT Policy
Equal Opportunities Policy

Science policy updated September,2025 by Craig Greenwood.