



## Science Policy

### Rationale

At Shiremoor Primary School we believe that Science stimulates and excites children's curiosity about phenomena and events in the world around them. It also satisfies their curiosity with knowledge. Because Science links direct practical experience with ideas, it can engage learners at many levels.

At Shiremoor Primary School we believe that Science will lead to a better understanding of ourselves and the world. It provides opportunities to appreciate scientific facts and concepts and to experience scientific discovery.

Science at Shiremoor Primary School is about developing children's ideas and ways of working that enable us to make sense of the world in which they live through investigation, as well as using and applying process skills. We believe that Science stimulates and excites children's curiosity about phenomena and events in the world around them. It also satisfies their curiosity with knowledge. Because Science links direct practical experience with ideas, it can engage learners at many levels.

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### Aims

- To engage children as learners at many levels through linking ideas with practical experience.
- To help children to learn to question and discuss scientific issues that may affect their own lives.
- To help children develop, model and evaluate explanations through scientific methods of collecting evidence using critical and creative thought.
- To show children how major scientific ideas contribute to technological change and how this impacts on improving the quality of our everyday lives.
- To help children recognise the cultural significance of Science and trace its development.
- To increase the child's knowledge and understanding of the world.
- To develop attitudes of curiosity, originality, co-operation, perseverance, open-mindedness, self-criticism, responsibility and independence in thinking.
- To enable children to effectively and confidently communicate their scientific predictions and discoveries as they are given the opportunity to observe, describe, illustrate, hypothesise, evaluate and interpret, using appropriate scientific vocabulary.
- To develop children's understanding of the effects of their actions on the environment.

## **Implementation of the Policy**

At Shiremoor Primary School scientific method is about developing and evaluating explanations through experimental evidence and modelling. This is an ignition to critical and creative thought. Through Science, children understand how major scientific ideas contribute to technological change – impacting on industry, business and medicine and improving the quality of life. Children recognise the cultural significance of Science and trace its world-wide development. They learn to question and discuss Science-based issues that may affect their own lives, the direction of society and the future of the world.

Science is not just a question of knowing facts and understanding concepts. It is also about encouraging children to behave scientifically (posing questions to be investigated, hypothesising, recording and analysing). At Shiremoor Primary School teachers aim to present Science in practical contexts which are relevant to the children's experiences. This will involve learning in class, group and individual situations. Some content is taught directly, but enlivened through practical demonstrations. Small group activities follow on from class discussion and encourage collaboration. Where possible, children are encouraged to investigate their own questions, making decisions for themselves and maintaining a high level of motivation. Children communicate their findings in a variety of ways such as poetry, drama, written reports, short talks and demonstrations.

At Shiremoor Primary School Science is celebrated around the school through displays of work, materials and objects. We use cross-curricula links to Science with, for example, design and technology through our STEM project work.

At Shiremoor Primary School to deliver the National Curriculum, the staff aim to promote a broad and balanced Science education which enables progression and continuity between classes. We aim to teach Science in ways that are imaginative, purposeful, well managed and enjoyable. Teachers will give clear and accurate explanations and offer skilful questioning, whilst making links between Science and other subjects.

At Shiremoor Primary School additionally, the practical nature of Science is recognised and opportunities for learning through play and firsthand experience should be provided, especially in the early years. Science plays an important role in the development of investigative skills and draws upon strong mathematical links, for example measurement, pattern recognition, graphical skills and data handling. Curricula links to other areas, for example, language, are recognised and developed.

## **Shiremoor Primary School Approach to Science**

### **Foundation Stage**

At Shiremoor Primary School staff follow the Early Years Statutory Framework planning learning opportunities for pupils. At this stage of learning children develop their understanding of the world around them on a daily basis, using their senses to explore and learn about objects and materials. Children are given holistic learning experiences, incorporating elements of Science in their everyday activities.

### **Key Stage 1**

At Shiremoor Primary School 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. Pupils are helped to 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. Most of the learning about Science is done through the use of first-hand practical experiences, but there is also some use of appropriate secondary sources, such as books, photographs and videos.

## **Lower Key Stage 2**

At Shiremoor Primary School 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. Pupils 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. Pupils 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 analysing functions, relationships and interactions more systematically. At Upper Key Stage 2, pupils 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 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. Pupils 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.

## **SMSC**

At Shiremoor Primary School Science contributes to our children's SMSC development through encouraging children to reflect on the wonder of the natural world. In addition children develop awareness of the ways that science and technology can affect society and the environment and consider some of the moral dilemmas that can result in scientific developments. Children also learn to show respect for differing opinions and co-operation in practical activities.

## **Assessment**

At Shiremoor Primary School we assess the children's work in Science by making informal judgements as we observe the children during lessons.

Summative assessment is carried out and recorded using Target Tracker each term. A formal assessment using the Rising Stars Tests is carried out to help inform this. All class teachers are responsible for inputting accurate data that is then monitored by curriculum leaders and senior management. At the end of the year a summative judgement is made for each child as to whether they have achieved the school's expected standard for the end of the year.

Evidence for teacher assessments is located in the Science books and may also be found in the English books when cross-curricular learning has occurred. Staff will store digital evidence including photos and videos on a secure Ipad or on the school network.

## **Health and Safety**

At Shiremoor Primary School children will be given suitable instruction on the operation of all equipment before being allowed to work with it. Children should be strictly supervised in their use of equipment at all times. Children should be taught to respect the equipment they are using and to keep it stored safely while not in use. Children should be taught to recognise and consider hazards and risks and to take action to control these risks, having followed simple instructions.

## **Allergies**

All staff are aware of pupils with allergies. Any activity which would potential bring a child into contact with an allergen is risk assessed and measures are put in place to ensure no child is put at any risk.

## **Differentiation**

At Shiremoor Primary School we aim to encourage all children to reach their full potential through the provision of varied opportunities. We recognise that our curriculum planning must allow children to gain a progressively deeper understanding and competency as they move through our school.

## **More Able Learners**

More able learners will be identified as part of our formative and summative assessment procedures. We will provide for their needs through a framework of high quality first teaching which focuses on ensuring the children are challenged appropriately. In addition, we will focus on developing their learning behaviours, including, greater reflection, problem solving and enquiry, making connections, higher order thinking skills and independent learning. The progress of more able learners will be rigorously tracked to ensure more able children reach their full potential.

## **SEND/Inclusion**

Children who are identified as being on the SEND register will be given support as identified on their Individual Provision Map. A variety of support materials are available from SENDCo, Mrs A Irving. Children are supported in the first instance through quality first teaching. Lessons will be differentiated in line with the individual needs of the children. All provision for pupils with SEND is in line with the school's SEND policy.

## **Equal Opportunities**

At Shiremoor Primary School the curriculum for Science will develop enjoyment of and commitment to stimulating the best possible progress and the highest attainment for all our pupils irrespective of social background, culture, race, gender, differences in ability and disabilities. All of our pupils have a secured entitlement to participate in the Science Curriculum and our teaching approaches ensure the avoidance of stereotyping when planning work or organising groups. All the teaching staff agree that when using reference materials, they should reflect social and cultural diversity and provide positive images of race, gender and disability.

## **Resources**

At Shiremoor Primary School there is a wide range of resources to support the teaching of Science across the school. Classrooms have a store of basic resources. Specialist resources and equipment are stored in the Year 6 classroom cupboards and should be returned after use.

## **Monitoring and Evaluation**

At Shiremoor Primary School the Science Coordinator monitors planning and assessments – evaluating medium term plans and taking note of annotations, amendments and suggestions made by class teachers. They ensure that the curriculum has been covered and that there are no gaps.

Photographs of completed work and displays may be kept digitally by the Coordinator as a portfolio, in order to monitor and support the raising of standards in Science within the school. The coordinators take responsibility for addressing any needs or concerns that arise as a result of this monitoring.

To monitor and evaluate Science the Science subject co-ordinator does the following:

- Purchases and organises the appropriate resources.
- Supports colleagues in the teaching of Science.
- Keeps up-to-date on the use of Science in the curriculum and regularly attend training for subject leaders held by the LA and feedback new information and ideas to staff.
- Conducts Science book scrutiny to assess the standards of Teaching and Learning through the children's work.
- Regularly reviews and updates the Science Policy and contribute to the school's self-evaluation programme and School Development Plan.

- Carries out analysis of cross school summative assessment data and end of key stage data.