



## **Barwell C of E Academy Science Policy 2017-2018**

**We want happy, confident, successful children.**

We want all children, regardless of their individual circumstances, to be **happy, confident** and **successful**. As part of this we believe that science can play a vital role in promoting values which encourage questioning, curiosity, perseverance and a passion for learning: all skills which are vital for them to becoming happy, confident and successful. Within the various strands of science, we, as a school, develop scientific thinking as an overarching philosophy towards the target of, and as a vital process in, fostering the next generation of scientists. It is the responsibility of each adult in school to promote these scientific values and ensure that each child has the opportunity and encouragement to attain to their best.

**Our ambitious target for Science this academic year is: 85% of children to be at age-related expectations by the end of the year.**

### **Aims and objectives:**

The principal aim of the science policy is to develop children's knowledge, skills and understanding through the use of a thematic curriculum.

The aims of science are in line with the national curriculum. These are

The national curriculum for science aims to ensure that all pupils:

- develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them
- are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

### **Teaching and Learning:**

The teaching and learning of science in Barwell CE Academy is conducted through our thematic curriculum. This involves embedding science in 'learning journey' lessons through the year. In certain learning journeys, Science will be a lead subject, around which the rest of the curriculum will be developed and supportive. This emphasises the role of Science as a core subject which is valued and integral to the children's learning in school.

Teaching and learning is conducted through:

- Quality first, whole class teaching
- Enquiry based research
- Practical experiments and other active scientific activities
- Problem solving activities
- Scientific questioning where children are encouraged to ask and answer different questions based on scientific areas pertinent to their year group
- Analysing data (statistics, graphs, pictures and photographs)
- Where appropriate, the effective use of technology and computing
- Barwell Science Day, where for one day the whole school develops and works in interactive science tasks. These may focus on a particular area of science to inspire the children (Physics, biology or Chemistry) or a particular curriculum area from the phase that the children learn from.

This is supported through the provision of suitable learning opportunities for children of all attainment. These may involve aspects such as:

- Setting open ended tasks allowing a variety of responses
- Ensuring there is work of increased difficulty to challenge higher attainers
- Ensuring groups in practical and written work are mixed to allow a good flow of ideas
- Focussing support in the classroom (from either the teacher or support staff) to allow those who have misconceptions to address these 'in the moment'.
- Where required, ensuring that children with relevant one to one support are supporting that child to access the learning of the lesson, be that independent or group work.

### **Science Curriculum Planning:**

The scheme of work which the children follow is derived from the latest national curriculum issued. It is divided into themes and subject areas relevant to each year group. These are delivered to the children in various learning journeys through the school year. Ensuring that the science curriculum is delivered through a thematic curriculum ensures that the science the children learn retains relevance and a purpose to *them*.

The planning of science is present in  
August 2017

- Long term plans outlining where the topics will be taught. These are shared with parents every year through an open evening which explains how the curriculum as a whole is delivered and where science will fit into this.
- Shorter term learning journeys, which usually encompass 3-5 weeks length.

The themes from the national curriculum are prescribed, but the overarching theme of 'Thinking scientifically' is intended to allow a progression within the school. The assessment of teachers in lessons (see section below) is key in ensuring that the opportunities to stretch all learners are being used and that children can see a clear progression in their learning.

### **The contribution to other curriculum areas:**

The way in which the curriculum links together is crucial to the working of science in school. Science supports, and is supported by, other curriculum areas in a variety of ways, such as:

- English  
Science promotes reading, writing, and effective verbal communication. It also develops oral skills through the discussion of ideas and observations.
- Maths  
Although maths is taught through the Maths No Problem scheme of work, science lessons can support the progress of children's maths attainment through the use of weights, measures, estimation, prediction and the observation and recording of events and experiments. Crucially, it also gives children the opportunity to use and apply number to relevant scenarios and in supporting conclusions to activities and experiments.
- Computing  
Science allows children to find, select and analyse information from a range of sources. Additionally, they have the opportunity to record, present and interpret data and to review and edit their work on conclusions based on this data.
- PSHE and Christian and British Values  
Science allows pupils the opportunities to develop the way they interact with the world, ensuring that they are afforded the chance to develop these crucial skills.

### **Resources:**

Whilst we have sufficient resources in our school to be able to teach our chosen Science, we regularly review, refresh, update and extend our range of resources. We keep resources for Science in a central store or electronically within a shared area for all staff to access. The school library has a good supply of Science based books and specific computer software supports the children's learning and research. Teachers draw upon the internet and our interactive whiteboards for resources to support teaching.

### **Teaching Science to children with Special Educational Needs:**

Through our science teaching we provide learning opportunities that enable all pupils to make progress. We do this by setting suitable learning challenges and responding to each child's different needs. Assessment against the National Curriculum allows us to consider each child's attainment and progress against expectations.

When progress falls significantly outside the expected range, the child may have an additional educational need which in some cases may match the criteria necessary to be classified as a Special Educational Need or Disability (SEND). Our assessment process looks at a range of factors – classroom organisation, teaching materials, teaching style, differentiation – so that we may take some additional or different action to enable the child to learn more effectively. This ensures that our teaching is matched to the child's needs. Intervention within SEND levels will lead to the creation of a Personalised Provision Plan for children assessed as meeting the criteria for SEND.

Children who are identified as being of general or specific higher ability are identified on our assessment tracking system. All staff have access to assessment tracking documentation and  
August 2017

plan their lessons with the needs of all children in mind, including those of higher ability. Where appropriate, higher ability children are given challenges to ensure that our teaching is matched to their needs.

**Assessment:**

We assess children's work in science by making informed judgements as we observe them during lessons. Feedback is made using the school's agreed Feedback Policy and we make a summative judgement about the work of each pupil in relation to age related assessment expectations within Barwell curriculum (derived from the national curriculum). At the end of each science topic, children take a short summative assessment which helps develop the teachers' half termly assessments of science.

We record the attainment of each pupil on a year group tracker and this information is passed to the Assessment Leader and the Science Leader and shared with the SLT at the end of each half term. The information is collated and any lack of progress is investigated and measures taken to accelerate progress in subsequent terms. Tracked assessment outcomes are passed on to the next year group at the end of each academic year.

**Monitoring and Evaluation:**

Every six weeks, the Science subject leader is responsible for monitoring the standards of the children's work and the quality of learning in Science. They are also responsible for supporting colleagues in the teaching of Science, from being informed about current developments in the subject to providing a strategic lead and direction for the subject in the school. They evaluate science through direct observation of teaching where appropriate, work and planning scrutiny, monitoring of assessment outcomes and through pupil interviews throughout each academic year. Results are shared with the SLT, Governors and teaching staff.

The Science Leader is : **Daniel Manley**

The designated Science governor is: **Jason Browning-Williams**