

Barmby on the Marsh Primary School – How do we teach Science?

INTENT

At Barmby on the Marsh Science education should be fully inclusive to every child. Our aims are to fulfil the requirements of the National Curriculum for Science; providing a broad, balanced and differentiated Science programme using objectives from the National Curriculum 2014. Science allows our learners to explore and understand the world through Biology, Chemistry and Physics. Knowledge, methods, processes and uses are woven through scientific enquiries. The spark of learning and excitement is used to encourage the curiosity of the children as they learn of natural phenomenon. Science encourages respect for living organisms, the physical environment and provides opportunities for critical evaluation of evidence. As much as possible, Science is taught in a practical way, so that the children experience the investigations and experiments first hand. A culture of learning from each other is promoted through use of co-operative learning structures. This is developed across both key stages, so that the children learn to respond appropriately and supportively to each other regardless of gender, age, cultural or ethnic background.

The aims of teaching Science in our school are:

- To develop scientific knowledge and conceptual understanding through the specific disciplines of Biology, Chemistry and Physics.
- To 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.
- To be equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.
- To develop the essential scientific enquiry skills to deepen their scientific knowledge.
- To use a range of methods to communicate their scientific information and present it in a systematic, scientific manner, including I.C.T., diagrams, graphs and charts.
- To develop a respect for the materials and equipment they handle with regard to their own scientific learning and discovery.

Special Educational Needs Disability (SEND) / Pupil Premium / Higher Attainers

At Barmby our aims are:

- To ensure full entitlement and access to high quality education within a broad, balanced and relevant curriculum;
- To identify barriers to learning as early as possible;
- To reach high levels of achievement for all so that children can reach their full potential;
- To meet individual needs through a wide range of provision, providing differentiation that aims to remove any barriers to learning.

Where children are underachieving and/or identified as having special educational needs, the school provides for these additional needs in a variety of ways and might use a combination of these approaches to address targets identified for individual pupils:

- High quality teaching is our first step in responding to pupils who have SEN. This will be differentiated for individual pupils.
- Wave 1,2,3 interventions;
- Other small group work;
- Class support;

- Bilingual support/access to materials in translation;
- Further differentiation of resources.

Any children with identified SEND or in receipt of pupil premium funding may have work additional to and different from their peers in order to access the curriculum dependent upon their needs. As well as this, our school offers a demanding and varied curriculum, providing children with a range of opportunities in order for them to reach their full potential and consistently achieve highly from their starting points.

IMPLEMENTATION

To ensure high standards of teaching and learning in Science, our curriculum is implemented through an engaging cross-curriculum approach. We use Cornerstones topics as a springboard to help us to develop units of work that inspires and excite children about their learning. The units are rich in wonder and memorable experiences and they allow children's natural creativity and curiosity to flourish, alongside the skills and knowledge stated in the National Curriculum.

At Barmby on the Marsh, Teachers plan lessons using our progression of knowledge and skills document alongside the Cornerstones long term plan and IPL document for the current topic (Topics are taught on a two year rolling programme in KS1 and a four year rolling programme in KS2. Gap analysis is regularly carried out by subject leaders with support from Cornerstones to ensure all objectives are being taught across the Key Stages). We build upon the knowledge and skill development of the previous years. As the children's knowledge and understanding increases, 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.

Working Scientifically, skills are embedded into lessons to ensure that skills are systematically developed throughout the children's school career. New vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years.

Teachers demonstrate how to use the scientific equipment and how the use skills needed to work scientifically, in order to embed scientific understanding. Teachers find opportunities to develop children's understanding of their surroundings by accessing outdoor learning and workshops with experts.

Regular events, such as Science Day and Theme Days allow the children to work with other year groups to participate in a range of activities. These events often involve families and the wider community.

IMPACT

Our Science curriculum is high quality, well thought out and is planned to develop progression. We focus on progression of knowledge and skills.

- Previous knowledge and understanding is accessed at the beginning of each topic. At the end of each topic, key knowledge is reviewed by the children, checked by the teacher and consolidated where necessary.
- Learning walks from the subject leader, makes it possible to check the quality of teaching and progression through the whole school.
- Topic books are presented to a high standard and shows if children are reaching their full potential and making expected progress. The work is marked and targets set to further their learning.
- Moderation staff meetings, where pupil book are scrutinised. This gives all members of the teaching staff a chance to see where children have come from and where they are going.

Leadership and Management

The subject leader's role is to empower colleagues to teach Science to a high standard and support staff in the following ways:

- By keeping up to date on current issues; disseminating relevant information and providing training for staff members (either directly or through other professionals)
- Leading by example by modelling lessons or styles of teaching
- Having a knowledge of the quality of writing provision across the school and using this to provide a coaching and mentoring role
- Identifying and acting on development needs of staff members
- Monitoring expectations, provision and attainment across the school and providing feedback to develop practice further in order to raise standards

Monitoring and Evaluation

The quality of teaching and learning is monitored through lesson observations, book scrutinies, internal moderation meetings. In addition, continuity and progression across the school is monitored by the subject leader as is the implementation and impact of Assessment for Learning. The subject action plan and external advisors identify actions intended to raise standards.

Partnerships with parents

At Barmby we aim to work in partnership with parents and carers. We do so by giving parents and carers opportunities to play an active and valued role in their child's education. Parents are informed on how they can help child at home. During Parents' Evenings curricular targets are shared and a written report is completed annually in the Summer Term. Homework in Early Years, Key Stage 1 and Lower Key Stage 2 is a choice of activity based on our Cornerstones topic.