



Science Curriculum Overview

Science is a subject that provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

"It is not the strongest of the species that survives, not the most intelligent...It is the one that is the most adaptable to change." Charles Darwin

What identifies an inquiry as a scientific inquiry is that it concerns questions about the natural and made world and leads to developing understanding of what there is around us." Harlen, 2018

Our curriculum intent

Our Science curriculum will enable pupils to develop:

- ☐ 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.
- ☐ be equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

Primary Science Quality Mark

Our commitment to quality Science education is evident through our GILT award for the PSQM.

What a pleasure it has been to read this submission! The SL and staff team have worked together to develop science from an already strong position. Lucy (aided by Kirsty, I think) has worked enormously hard, achieving a tremendous amount, while demonstrating excellent leadership and all across the most difficult of years. She has been ably supported by the rest of the senior leadership team and enabled to run a 'tight ship', despite the many obstacles along the way.

The evidence presented is strong and signals some potential for Outreach in future years – just not quite yet! I have no hesitation in declaring this to be a worthy PSQM Gilt.

Congratulations one and all. I have no doubt that science at Bradley Green Primary will continue to go from strength to strength. Well done!

Nicola Beverley

29th July 2021



Our curriculum approach - Knowing and remembering more

We believe that the Science curriculum we offer at Bradley Green is exceptional. It enhances the children's knowledge of the world. We have a detailed and well-sequenced curriculum with built in retrieval activities to enable the children to know and remember more. Our curriculum challenges misconceptions and makes links to previous and future learning.

Our curriculum is designed so that key concepts are revisited within and across year groups so that children can relate information and ideas to each other and make sense of them.

Key concepts:

Scientific enquiry:

- Comparative and fair testing.
- Observing changes over time.
- Grouping and classifying.
- Research using secondary sources.
- Seeking patterns.

Science domains:

- Biology
- Chemistry
- Physics

We have weaved scientific enquiry activities into our Science curriculum so that the children have many opportunities to master these skills.

Assessment

At Bradley Green, we assess children in the moment and during all parts of a lesson. Teachers will complete an assessment after each Science lesson. This is based on their assessment of the lesson, who shows great understanding and who requires more depth of learning. Class teachers will discuss these assessments written on the unit plans with the Science subject lead at the end of the unit who will then make any necessary adjustments to the unit plans.

At the end of each unit, a judgement is made for each of the National Curriculum statements covered and this is logged on Bromcom.

Developing expertise

Our Science subject lead ensures that they are up to date with all current Scientific knowledge, training and development through Enquire learning trust networks, being members of STEM and our local Tameside Science Network in partnership with Ogden Trust. Before each Science unit of work is taught, our subject lead meets with class teachers to ensure that they have strong subject knowledge and access to all the resources they need. They will support with any training or development that is required.

Science in EYFS

Science is part of understanding the world in EYFS. Children are given opportunities to be scientists through planned activities as well as their own lines of enquiry. They are encouraged to make predictions using their knowledge of the world. Children are exposed to scientific vocabulary. On a daily basis, children talk about what the weather is like and make comparisons from the previous day. Through Forest School sessions and art, children explore seasonal changes.

Personal development

Through our Science curriculum, we have a determination to develop learners to have a well-rounded set of British Values that enable them to keep themselves safe and prepares them for life in the modern world in a diverse and ever-changing community aspiring for equality for all. We have a cast iron conviction to develop the behaviours that children need to succeed in the world ensuring they are ready, respectful, and safe. To understand spirituality in themselves and others, develop social skills and understand society, build a firm set of personal morality, and to engage in the culture they live in and understand the cultures of others. Our lessons are carefully planned to allow all children to develop the 10 life skills we work on at Bradley Green: Managing distractions, noticing, perseverance, questioning, planning, reasoning, collaboration, listening, empathy, and organisation.

SEND

Our classrooms are inclusive classrooms. They are places where learning opportunities are tailored to meet the needs of all children; in lessons where adults have thought about the ways in which learning is purposeful, meaningful and relevant to the current needs of every child. These are classrooms where lessons are pitched so that every child experiences success and makes progress in their learning.

Lesson structure

Each lesson begins with some retrieval of key knowledge and vocabulary from previous lessons and units from the current and previous year groups. We believe that it is vital that children know and remember more. *"Building our long-term memory and our level of fluency in recall. More fluent recall allows more space in working memory to attend to applying the knowledge to explain deeper questions."*

The learning intentions will be shared with the children. *"If we don't know where we are going, we'll never arrive!"*

Before the new learning takes place, staff will activate some prior knowledge, which links to the new learning of the lesson, through a retrieval type task or a discussion. *"Prior learning needs to be active in our working memory if we're going to add layers of complexity to it. New information is only stored if we link it to the knowledge we already have."*

The main part of the lesson may contain an 'I do', 'we do' or 'you do' element depending on the content and where they are up to in the unit. This is where the teacher will model, children will work together and/or with the teacher so that they are supported and then children will complete a task independently.

Throughout the lesson, staff will use a range of questions to assess the children's understanding and guide the lesson appropriately, tailoring the lesson for individuals if required.

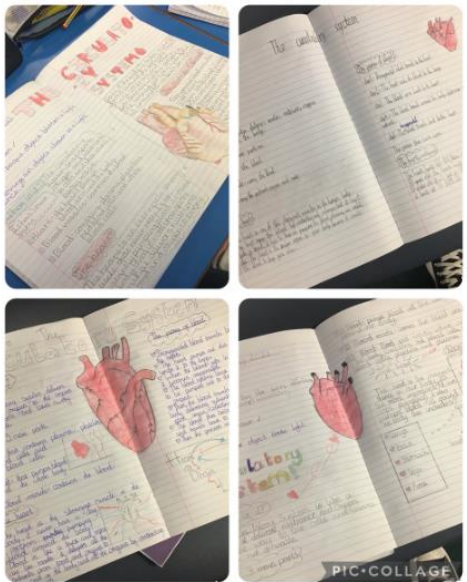
At the end of the lesson, staff will ask carefully targeted questions to assess children's understanding. These questions are open questions that relate to understanding rather than just remembering. This assessment is then used to decide a starting point for the next lesson in the sequence.

Any assessments made during the lesson regarding children's understanding as individuals or as a whole are noted on the bottom of the unit plan.

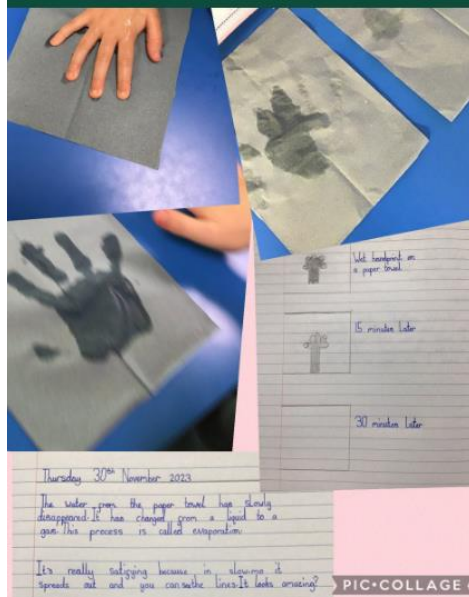
Oracy education

Oracy develops students' confidence, articulatory, and capacity to learn. We provide a high-quality oracy education as a Voice 21 school.

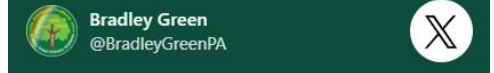
There are many opportunities purposefully planned into the Science curriculum for children to talk. We believe that every child should have the opportunity to not only learn through talk but learn to talk. Therefore, we use different talk tactics and groupings throughout our curriculum.



#BradleyGreenYear6 have been learning about the circulatory system, the key components and role that it plays in our body. We re-enacted the process of blood travelling around the body and created amazing explanation texts showcasing our learning! #BradleyGreenScience 💡



In Science #BradleyGreenY4 have been learning about evaporation. #BradleyGreenScience



As part of our seasons topic, which we visit every season, #BradleyGreenYear1 did an autumn hunt on the playground this afternoon looking for the signs of autumn and I was blown away with what the children had noticed and what we could discuss. #BradleyGreenScience 🍁🍂



#BradleyGreenY5 have been investigating friction this afternoon and how the force needed to pull 1kg changes for different materials
#BradleyGreenScience