



Science Intent, Implementation and Impact



Intent

 Purpose & Pride	We take pride in providing a broad, balanced and differentiated Science curriculum which ensures the progressive development of knowledge, skills and vocabulary in line with the National Curriculum, through the specific disciplines of Biology, Chemistry and Physics. We aim for our children to think for themselves, following lines of enquiry in varied investigations and to question the world around them. We recognise the importance of Science in everyday life and therefore intend to relate learning to real life experiences. Our children take pride in their learning of Science and show this through their sharing of knowledge with others and in their written work.
 Respect	Our curriculum enables children to develop their skills of co-operation through working with others, and to encourage where possible, ways for children to explore science in forms which are relevant and meaningful to them. We encourage children to treat the living and non-living environment with respect and sensitivity. We also aim to develop a respect for the materials and equipment they handle with regards to their own, and other children's safety.
 Enjoyment	Our aim is to build on children's enthusiasm and natural sense of wonder about the world and the enjoyment of scientific learning and discovery. We want them to explore curiosities and test theories for themselves, to develop a love and 'WOW' of science. We aim for learning to be exciting and full of intrigue, where children have a desire for exploring new things and problem solving when needed.
 Achieve & Aspire	Science education should be fully inclusive to every child ensuring progressive development and for the children to develop a love for science. We aim to inspire, in pupils, a curiosity and fascination about the natural and man-made world and a respect for the environment that will remain with them for the rest of their lives. We want our children to understand the potential routes and diverse opportunities within STEM (Science, Technology, Engineering and Maths) and aspire to work within these roles in the future.
 Community	We aim to raise our children's aspirations and extend opportunities to the world beyond their immediate environment. The school's approach to science takes into account our own context, ensuring access to people with specialist expertise and places of scientific interest. We work to link with local secondary schools, which enables our children to access specialist resources, enhance the delivery of the science curriculum and prepares them for their next step in education.
 Health & Well-being	We encourage children to build resilience and to persevere when carrying out investigations. Through aspects of Science taught, we intend to teach the children the way in which the human body works and functions and the importance of a healthy lifestyle, to ensure the body continues to work as it should.

Implementation

Big Picture

- High quality planning and teaching, using our progressive graduate document, The Hiller Scientist, which covers the National Curriculum for Science that is taught at Coney Hill Primary School.
- Science skills and knowledge are taught through a discrete weekly lesson, which may link to the theme - where appropriate. On occasions, lessons may be joined up into longer sessions for the benefit of children's learning and experience e.g. experiments.
- Learning is active and inquisitive, using reasoning skills.
- Opportunities for active learning (VAK- Visual and Kinesthetic, investigations, research, carousels, real life experience, visual literacy, drama etc.) are taught – where appropriate.
- Teachers, using our unit maps, which are built from The Hiller Scientist graduate document, map out the learning via a medium-term plan, building on the learning and skill development of the previous learning.
- We use the term Science when we are teaching Science lessons.
- Every Science lesson will be driven by a key question, shared with the children at the start. The learning objective for the lesson, WAL (We Are Learning), will focus on the scientific enquiry skills needed to answer this question.
- Working "scientifically" skills are embedded into lessons to ensure these skills are being developed throughout the children's school career and are displayed on the class Science display boards and referenced in each lesson so that the children are aware of what Scientific skill they are using and the enquiry skill they will use to achieve it. Working in this way, the children will be able to answer each lesson's key question in a Scientific way.
- Cross-curricular links are used wherever possible, including Literacy, Numeracy, Reading and Computing.
- Mini plenaries will be used throughout lessons to gain pupil voice and understanding, in order to shape lessons. Misconceptions are regularly addressed.
- SK (skills and knowledge) grids are used for lessons/series of lessons to highlight and evaluate the skills and knowledge taught. This informs our impact assessment.
- Each "unit" of Science will have at least one investigation for the children to carry out and this will be written/evidenced in books.
- Each unit is concluded with an open activity to assess key knowledge learned and to allow the children to show in their own way what has been learnt.
- In addition to weekly Science lessons, Science is also covered in other areas of our curriculum such as whole school theme weeks.
- Reactive Science: developing knowledge and awareness of the world around them, setting them up to be responsible global citizens will be covered (as they occur and as time allows) to keep children up to date with major scientific breakthroughs and development.
- Cultural Capital: Wherever possible we will take our children out to see science in action or have visitors in school e.g. visits to the local secondary school for science experiences; hold after school clubs run by specialists; visit museums to experience science in use and give children an understanding of why science is used and to create aspirations for a career in Science. Weekly cultural activities may also be science based. Our Cultural Capital Science experiences are documented on The Hiller Scientists graduate document and on our unit maps.

Our Learners

- We aim to cultivate independent thinkers who use enquiry-based learning through HOT (higher order thinking) questions, KIP (Knowledge is Power – to embed knowledge to stick in memory) quizzes, knowledge organisers and "rapid recall time" at the start of each unit/lesson.
- Concept cartoons are used regularly, when appropriate, to challenge and stretch children's

thinking.

- Learning is inclusive; lessons are scaffolded to support different learners and different learning styles.
- Resources: Pupils will have access to a wide range of resources and equipment to understand their everyday value in life.

Learning Environment

- Progressive, key vocabulary is displayed, in the room, and referred to during the lesson.
- Working scientifically and scientific enquiry skills are displayed, in the room, and referred to during the lesson. In every lesson, children are shown which working scientifically skills they are using and what their line of enquiry will be.
- Knowledge organisers are available, at the back of every Science book and are referred to throughout lessons. These are then stuck down in the Science book at the end of each unit.

Impact

The Hiller Scientist is inquisitive, engaged, excited, resilient and interested. They recognise that working within the field of Science could be a future job prospect for them. Through our developing cultural capital offer, we aim to widen our children's knowledge and enrich their lives.

High quality science education provides children with the foundations for understanding the material world around them and offers them insight, pique their interest and ambition into careers within this field.

Assessment is teacher judged and formed using open double page spread assessment tasks at the end of units, to enable children to show us the knowledge they have learned, as well as informal strategies - use of concept maps, verbal/written outcomes in marking, 10 in 10 daily curriculum quizzes, KIP quizzes at the start of each lesson to recap and recall previous learning. Some units may also include an end of unit test. Formative assessment is used at the end of each lesson, as the main tool for assessing the impact of Science learning, as it allows for misconceptions and gaps to be addressed more immediately rather than building on insecure scientific foundations. Subject assessment sheets are completed at the end of each unit to capture how well children are learning against the national curriculum.

Coverage and attainment across classes is closely monitored in line with our Graduate document and curriculum unit maps, by the subject leader and senior leadership team. Monitoring will include: book looks, learning walks, gathering evidence of good practice and pupil voice interviews.

The findings of this monitoring will be used to inform next steps for the children and the implementation of Science across the school as a whole.