“Love Learning, Love Life…in all it’s fullness”

Science Curriculum Intent, Implementation and Impact Overview

The study of science is focused on developing an understanding of natural phenomena and the man-made world including the ways in which science impacts on people’s lives and the environment. Our curriculum covers all areas of science learning, including living things, plants, humans and animals, materials; properties, changes and matter, Earth and space, forces, energy, electricity and electromagnetism and waves. Pupils are taught essential aspects of the knowledge, methods, processes and uses of science. Learning in science is practical and hands-on and allows learners to collect first-hand evidence from observation and/or experimentation within the different areas/branches of scientific study. As a result of our science curriculum, learners will become equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future. They will understand the limitations of their own experiments and develop an understanding of science being dynamic and that ideas and theories are constantly evolving even if they cannot yet be tested. The range and breadth of learning in science includes learning about science in different times and places and how current scientific thinking and exploration are influenced by culture, religion and attitudes to guardianship of the future.

Our aspiration is that children are inspired to be curious about natural phenomena and develop key knowledge and concepts in order to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes, both in and out of school.

INTENT	RESEARCH	IMPLEMENTATION	PLANNED IMPACT
The 2014 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	The 2016 study: Inquiry-based science education: towards a pedagogical framework for primary school teachers by Van Uum, Verhoeff and Peeters cited that: *Inquiry-based science education (IBSE) has been promoted as an inspiring way of learning science by engaging pupils in designing and conducting their own scientific investigations. Our*	We use the online platform Curriculum Maestros to design, deliver, manage and assess our Science curriculum. We currently deliver our Science Curriculum on a two year rolling program as we have vertically grouped classes in Key stage 2, therefore in order to avoid repetition we have a two year cycle of projects. Although science programmes of study in the national curriculum are assigned to year groups, this is not compulsory and they must be covered before the end of the phase. This has enabled us to plan a coherent and progressive curriculum where the science projects are sequenced to develop both children’s substantive knowledge (concepts which form the underpinning structure of the subject) and	The successful approach at Holyport results in a fun, engaging, high-quality science education, that provides children with the foundations and knowledge for understanding the world. Our project based approach ensures that children learn through varied and first hand experiences of the world around them. Frequent, continuous and progressive learning is embedded throughout the science curriculum.

answer scientific questions about the world around them ● are equipped with the scientific skills required to understand the uses and implications of science, today and for the future. We understand that it is important for lessons to have a skills-based focus, and that the knowledge can be taught through this. At Holyport we encourage children to be inquisitive throughout their time at the school and beyond. The Science curriculum fosters a healthy curiosity in children about our planet and the universe beyond and promotes respect for the living and non-living. We believe science encompasses the acquisition of knowledge, concepts, skills and positive attitudes. Throughout their time at Holyport, children will acquire and develop the key knowledge that has been identified within each unit and across each year group and this is informed by the national curriculum. Our curriculum is designed to	*results show that teachers can guide their pupils successfully through the process of open inquiry by explicitly addressing the conceptual, epistemic, social and/or procedural domain of scientific knowledge in the subsequent phases of inquiry.* The 2014 National Curriculum in Science purpose of study states that: *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.* The 2014 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*	declarative knowledge (accumulation of facts) and if possible, make meaningful links to other projects and subjects. The sequencing of projects ensures that children have the substantive knowledge and vocabulary to comprehend subsequent projects fully. Each project's place in the year has also been carefully considered. For example, projects that involve growing plants or observing animals are positioned at a suitable time of year to give children the best possible opportunity to make first-hand observations. Within all the science projects, disciplinary knowledge is embedded within substantive content. Science is taught in planned and arranged project blocks using Curriculum Maestros mapping, with a project-based approach. This is a strategy to enable the achievement of a greater depth of knowledge. Each new project begins with a memorable experience to 'hook' the children and engage them in the new learning. Existing knowledge is checked at the beginning of each topic, this is through the use of quizzes. This ensures that teaching is informed by the children's starting points and that it takes account of pupil voice, incorporating children's interests. Children are encouraged to ask their own questions and be given opportunities to use their scientific skills and research to discover the answers. This curiosity is celebrated within the classroom. Planning involves teachers creating engaging lessons, often involving high-quality resources to aid understanding of conceptual knowledge (provided by Curriculum	Children have the knowledge and skills to work scientifically. They make sustained progress in science which is measured against age appropriate expectations using the assessment tool within Curriculum Maestros. By the end of each phase children are expected to know, apply and understand the knowledge, skills and processes specified in the programme of study. Children are encouraged to ask questions and be curious about the world around them. This in turn means the children at Holyport enjoy science and this results in motivated learners with sound scientific understanding.

ensure children learn within a coherent and progressive framework in accordance with the Working Scientifically skills expectations of the national curriculum. The curriculum is designed to ensure that children are able to acquire key scientific knowledge through practical experiences; using equipment, conducting experiments, building arguments and explaining concepts confidently. We focus on providing key cross curricular links, which are mapped and planned to ensure contextual relevance. We believe that children deserve a balanced curriculum that enables them to develop a deep understanding of all subjects and the interconnections between them. Children are encouraged to ask questions and be curious about their surroundings and a love of science is nurtured through a whole school ethos and a varied science curriculum.	*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*	Maestros). Teachers use precise questioning in class to test conceptual knowledge and skills, and regularly use pupil self-assessment to identify those children with gaps in learning, so that all pupils make progress. Tasks are selected and designed to provide appropriate challenge to all learners, in line with the school's commitment to inclusion. The coherent and progressive framework means 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 and new vocabulary and challenging concepts are introduced through direct teaching. This is developed throughout the curriculum, in-keeping with the Curriculum Maestros projects. At the end of each topic, key knowledge is reviewed by the children and rigorously checked by the teacher and consolidated as necessary.	

CURRENT ACTION POINTS - for further details see our Science Action Plan

- 1. To continue to develop a rigorous assessment process for this subject including pupil self-assessment.
- 2. To ensure the curriculum is exciting, interactive and engaging.
- 3. To develop pupils' scientific vocabulary across the school from EYFS through to Year 6.