Curriculum Statement for the Teaching and Learning of Science

Intent Statement:

When teaching science at Parc Eglos, we intend to provide a curriculum which not only caters for the needs and interest of all individuals but also celebrates the endeavours made by scientists from both Cornwall and across the globe. We intend to foster and develop skills to both question and understand the natural world; that both the support and disagreement of ideas are of equal value when underpinned by evidence, and that both careful analysis and considered reflection are required to move forward.

We aim to prepare children to be successful adults and an aid to our collective future through appreciating underlying relationships and potential consequences to both action and inaction within the natural world.

By underpinning each year group's learning with the same fundamental 'Big Idea' for each topic, children can strengthen and develop their understanding regardless of their academic ability. Once grasped, children are required to extend their knowledge out from the 'Big Idea' towards Mastery: to observe it, explain it or hypothesise it functioning within new situations; the causes and effects.

Children will be taught to use scientific vocabulary in order to explain and understand with precision. They will develop their scientific reasoning and logic through carefully structured lessons which include discussion and collaboration as integral to learning. We encourage attention to detail, resourcefulness and critical thinking – and that resilience and struggle is often a necessary step in our universal understanding.

The aim is that science causes children to take more notice of the world around them and that this in turn causes an endless curiosity. Children should leave Parc Eglos instilled with confident, passionate and enthusiastic scientific (questioning) minds – even if they are quite unaware that this is so.

Scope

The National Curriculum

Key Concepts

Pattern Seeking and Relationships	Observation Over Time	Comparative and Fair Testing	Identifying, Grouping and Classifying	Research	Seeking Understanding through Questioning	Concluding and Hypothesising through Collecting and Presenting Data
Through careful data collecting and observations, patterns of both behaviour and number are used as a basis for questioning as well as hypothesis, predictions and conclusions.	Identifying and measuring events and changes in living things, materials and physical processes or events. Observations may take place over spans of seconds, minutes or months – depending on the subject to be studied and the question to be answered.	Comparative tests compare one event with another (e.g. Does the red car go faster than the green car?) Fair tests identify the casual relationship between two variables (e.g. does the height of the ramp affect how quickly the same car rolls down).	Making sense of how the world is organised. Using similarities and differences to organise into groups of ever developing sophistication – and using this knowledge to identify what is observed.	Finding answers through secondary sources, usually where it is impossible or unsafe to answer with first hand enquiries. Research requires evaluation between sources, distinguishing between fact and opinion and recognising conflicting evidence and bias.	Science is ultimately asking questions and then seeking answers. Pursued properly, a good question can be an excellent vehicle with which to start a process of enquiry. Questioning should be rational to observations and experiences; prior to, throughout, and in conclusion to enquiry.	A rational suggestion of what causes and event is a hypothesis. A conclusion either supports or contradicts a hypothesis following experiments. Careful data gathering of an experiment is presented in clear and meaningful format to remove ambiguity and lessen misinterpretation of the results.

Mastery (aspirational)	Fluency	Collaboration	Oracy	Vocabulary	Modelling
Children are encouraged to think and reason beyond the curriculum requirements. Classroom culture will foster the appliance of learning into new scenarios and	Children will make links between their previous learning and their own observations and experiences. They will be able to	Children will be supported to work, discuss and reflect collaboratively. The positive value of teamwork, discussion and	Children are encouraged to voice their ideas, solutions and explanations to an audience. Part of this is to not feel afraid of being incorrect through having	Key vocabulary is threaded throughout the school and taught explicitly. Further scientific vocabulary, prominent to each programme of study, is also	Through teaching with strong subject knowledge and a visible enthusiasm for the wonder, mystery and the pursuit of answers -children's curiosity and

	problem-solving. Through an energetic curiosity and skills from the key concepts, children will develop a deep understanding of how to create pertinent questions, test ideas and explain phenomena.	recall the fundamental causes and effects being investigated.	debate is made conspicuous and encouraged.	confidence that science is an exploration of ideas. Children will be supported in basing their thoughts upon known understanding so that their ideas are rational to their learning.	taught and explained to support the communication of concepts with greater precision.	appetite is supported. Through modelling science is based upon these traits, a love for the subject is fostered.

Underpinned by:	**The Teaching of Curiosity and Hypothesis**	**The Teaching of Observing, Recording and Concluding**	**The Teaching of Testing/Experimenting**	**A Vocabulary Rich Environment**
	We intend for all pupils to engage with and be curious about the natural world; to raise questions of how and why, to reason rational explanations using their previous experiences, finding patterns and connections. This all becoming increasingly more sophisticated and detailed over time, with an ability to apply scientific principles in order to aid the understanding of new and/or more complex scenarios.	We intend for all pupils to develop their skills of careful and focused observation which is purposeful to the objective at hand (including both the conspicuous development of objectivity and the removal of assumption) and to be formally recorded in a format conducive for future reference and further studies. This information is used to form a conclusion of understanding, increasing in sophistication over time.	We intend for all pupils to understand testing is used as the route in finding an answer to a hypothesis concerning the real world, and that a scientific test/experiment requires the consideration of risks affecting an accurate outcome. Part of testing/experiment is also the promotion that the process is just one 'stepping-stone' towards the destination (conclusive understanding).	We intend to create a vocabulary rich environment where topic-specific vocabulary is used to develop understanding and definition, and referred back to and built upon like additional branches grown from a trunk; phrases such as rational and irrational are promoted in feedback to focus the children's thinking on 'what makes sense' and 'what doesn't' based upon experience.

Implementation - We implement our approach through:	**Teaching**	**Intervention**	**Planning**	**Collaboration**	**Monitoring**	**External Support**
	High quality enthusiastic teaching, delivering appropriately challenging work for all individuals.	Work conferences to target small groups or individuals who need consolidation or stretching (as outlined in our marking policy).	A range of planning resources to give all children the opportunity to reason with their understanding. Planning for additional opportunities to experience the learning in an outside environment.	Continuously striving to better ourselves and frequently share ideas and things that have been particularly effective through staff meetings, planning time and meetings with our year group partners.	Continuously monitoring pupils" attainment for their age, making formative assessments at the end of each term. Tracking meetings are in place each term to identify successes and priorities for the coming term. The main purpose of all assessment is to ensure that we are providing excellent provision for every child.	Valuing the external scrutiny of teaching and learning at Parc Eglos in science.

Impact – As a result of our Science teaching at Parc Eglos you will see:	Engaged children who are all challenged and developing their scientific approach and understanding.	Confident children who can all talk about science and their learning.	Lessons that use a variety of resources to support learning.	Learning that is tracked and monitored to ensure all children make good progress.