



St Anthony's Catholic Primary School

An Academy within The Catholic Academy Trust in South Hampshire

'Children in our heart, Christ at the centre'
'We love, we learn and we live'



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Science Policy



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*'Children in our heart, Christ at the centre'
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The St Anthony's mission statement is 'Children in our heart, Christ at the centre. We love, we learn and we live.' To live out this mission, we are guided and led by our Catholic ethos that places the Catholic Social Teaching principles of Human Dignity and the Common Good at the heart of our school. We recognise that each of us is unique and loved by God and we are called to lead by example, as Christ did, to show respect and love to every person because each of us is made in the image of God.

Introduction

At St Anthony's Catholic Primary School, our science curriculum aims to inspire a lifelong curiosity and fascination about the natural world. We believe that science is a vital part of the children at St Anthony's education, nurturing their sense of wonder, developing their ability to question, and empowering them to explore the world around them with curiosity, confidence and respect for God's creation.

Through high-quality teaching and engaging learning experiences, we encourage pupils to be open-minded, reflective and inquisitive learners who seek to understand how and why things happen. Our science curriculum is designed not only to build secure scientific knowledge, but also to develop the skills of scientific enquiry that enable children to think critically, test ideas, and draw evidence-based conclusions.

At St Anthony's, science plays a central role in supporting our whole-school vision of curiosity, creativity and high standards. Rooted in our Catholic ethos, our curriculum promotes a sense of awe and wonder at the beauty and complexity of God's world, fostering respect and stewardship for the environment and all living things.

The curriculum is carefully sequenced from the Early Years Foundation Stage through to Year 6, ensuring that key concepts and skills are revisited, deepened and securely embedded over time. Knowledge organisers, progression maps and retrieval practice underpin our approach, helping children to make meaningful connections between topics and to retain key scientific vocabulary and understanding.

Practical, hands-on enquiry lies at the heart of our teaching at St Anthony's. Children are encouraged to observe closely, ask questions, make predictions, carry out investigations and evaluate their findings. These experiences develop not only scientific understanding but also perseverance, problem-solving and teamwork skills.

We are firmly committed to inclusion, ensuring that all pupils regardless of background, need or ability to have access to a rich and stimulating science education. Through enrichment opportunities such as science weeks and themed events we aim to foster enthusiasm and pride in scientific discovery.

Ultimately, our goal is for every child at St Anthony's to think and work like a scientist, to approach the world with curiosity, reason and a deep appreciation of the role science plays in shaping our lives, our society and our shared future, while recognising and celebrating the wonder of God's creation.

Curriculum Intent

The intent of our science curriculum is to deliver a curriculum which is accessible to all and that will maximise the development of every child's ability and academic achievement in this subject. 'A high-quality science curriculum prioritises pupils building knowledge of key concepts in a meaningful way' (Ofsted research review series: science published April 2021)

At St Anthony's Catholic Primary School, our intent is to nurture every child's natural sense of wonder about God's world and to inspire them to think, question and explore like real scientists. We want our pupils to see science not only as a subject they learn, but as a way of making sense of the amazing world that God has created.

Our science curriculum is designed to be accessible, meaningful and exciting for all learners. It builds children's knowledge step by step, helping them to make connections, see patterns, and understand the key scientific ideas that explain the world around them. Through carefully sequenced lessons and hands-on experiences, every child is supported to achieve their best and to develop confidence as a young scientist.

At St Anthony's, we believe that curiosity is the starting point for all great learning. We want our children to ask questions, wonder "why?" and "how?", and seek answers through exploration and investigation. Science is taught through practical enquiry wherever possible, giving pupils opportunities to test ideas, make predictions, and evaluate evidence in a fun and engaging way.

Our science curriculum at St. Anthony's also helps children develop important learning behaviours, collaboration, perseverance, reasoning, empathy and listening, which prepare them not only for scientific study but for life. Wherever possible, we take science beyond the classroom through our Forest and Farm School experiences, encouraging pupils to learn about and care for their local environment. This fosters a deep sense of respect and stewardship for creation, in keeping with our Catholic mission.

Children at St Anthony's are inspired by stories of real scientists past and present and learn how scientific ideas continue to shape our modern world. By the time they leave us, we want every pupil to:

- Have a secure understanding of key scientific knowledge, vocabulary and concepts.
- Be confident in using enquiry skills to observe, investigate and draw conclusions.
- Appreciate the beauty, order and wonder of God's creation.
- Believe that they can be scientists and creative thinkers who can make a difference in the world.

In this way, our science curriculum empowers children not only to understand the world, but to take an active, thoughtful role in shaping its future.

The subject leader has identified key intentions for our science curriculum. These are:

1. Scientific knowledge is sequenced so that pupils build their knowledge of important concepts and skills enabling all children to reach or to exceed appropriate age-related subject knowledge, skills and understanding.

2. To nurture children’s learning behaviours and develop a curiosity towards the exploration of knowledge. It is a curriculum which encourages the key skills of: collaboration, perseverance, distilling, reasoning, empathy and listening.
3. To link our scientific enquiries with outdoor learning whenever possible, using Forest and Farm school as appropriate. In this way, the children will be encouraged to learn respect for their local and wider environment.

Curriculum Implementation and Impact

The subject intentions are used to drive curriculum implementation alongside appropriate evaluated educational research. The school implements the science intentions in the following way:

Intent	Research link	Implementation	Impact
Scientific knowledge is sequenced so that pupils build their knowledge of important concepts and skills enabling all children to reach or to exceed appropriate age-related subject knowledge, skills and understanding.	<p>Ofsted research review series: Science</p> <p>The school science curriculum sets out what it means ‘to get better’ at science. Expertise in science requires pupils to build at least 2 forms, or categories, of knowledge. The first is ‘substantive’ knowledge, which is knowledge of the products of science, such as models, laws and theories. The second category is ‘disciplinary knowledge’, which is knowledge of the practices of science. This teaches pupils how scientific knowledge becomes established and gets revised. Importantly, this involves pupils learning about the many different types of scientific enquiry. It should not be reduced to learning a single scientific method. In high-quality science curriculums, knowledge is carefully sequenced to reveal the interplay between substantive and disciplinary knowledge. This ensures that pupils</p>	<p>A clear and effective scheme of work that provides coverage in line with the National Curriculum.</p> <p>At St Anthony’s, the ‘Progress Pathways’ for science designed by the Cams Hill consortium forms the basis of our implementation of the Science programmes of study for key stages 1 and 2.</p> <p>Each year group has 6 science units to teach throughout the year (1 per half term). This ensures our pupils develop sequenced scientific knowledge and conceptual understanding that encompasses the disciplines of biology, chemistry and physics. These units may be taught through a science led theme, or discretely if required.</p> <p>Each unit has 4 key objectives to be taught and investigated practically to enable pupils to question, hypothesize, test and discover for themselves about our world.</p> <p>Progression is built into the science scheme of work so that the children are increasingly challenged to manage their own investigations as they move up through the school.</p> <p>Access to resources which aid in the acquisition of scientific</p>	<p>Children will become confident scientists.</p> <p>They will acquire relevant science skills building on previous learning year by year.</p> <p>By the end of each key stage, pupils will be expected to know, apply and understand the knowledge and skills specified in all the relevant programmes of study and possibly beyond.</p>

	not only know 'the science'; they also know the evidence for it and can use this knowledge to work scientifically.	<p>skills. Children will have access to a wide range of resources to carry out their own investigations.</p> <p>Our 'working scientifically' targets are differentiated for each phase. Our SEN children may need adult support to acquire these skills. Our pupils working at greater depth will be encouraged to exceed them thereby acquiring and demonstrating skills from the phase beyond.</p>	
To nurture children's learning behaviours and develop a curiosity towards the exploration of knowledge.	<p>There is a range of research and evidence, including:</p> <p>Dweck's research on a growth mindset Gardners' theory of multiple intelligences Hattie's evidence about achievement Langer's research on the power of language Lave and Wanger's work on communities of practice Perkin's writing about learnable intelligence</p>	<p>Children are encouraged to use of a range of learning powers to encourage a range of skills to aid scientific enquiries.</p> <p>At St Anthony's we have developed our range of 'awesome' powers which the children are encouraged to use in every lesson. To be the most awesome version of themselves the children have the following targets:</p> <ul style="list-style-type: none"> • Working your socks off • Turning your ears on and growing your brain • Being a problem solver • Try and try again • Being brave and trying something new 	Children will become confident independent learners who are able to accomplish their own scientific enquiries to test hypothesis and evaluate findings.
To link our scientific enquiries with outdoor learning whenever possible, using Forest and Farm school as appropriate.	<p>NFER - Engaging and Learning with the Outdoors Outdoor learning supports academic achievement, for example through fieldwork projects, as well as the development of 'soft' skills and social skills, particularly in hard to reach children.</p> <p>Education Select Committee 'Education outside the</p>	<p>Regular use of our Forest and Farm schools</p> <p>Teachers must sign up to use the Forest and Farm school facilities at least twice every half term.</p> <p>'Spontaneous' science must be collected and added to evidence of learning outdoors in theme books. Suggestions and templates for this are provided by Science manager.</p>	<p>'Awe and wonder' experiences will be achieved during regular Outdoor Classroom sessions.</p> <p>Children will develop a deeper understanding of environmental issues.</p>

	classroom is of significant benefit to students. Academic fieldwork clearly enhances the teaching of science and geography...'		
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In Science, like all other subjects, we recognise the importance of the methods and practice of teaching (the pedagogy) we choose to use in enabling pupils to know more, understand more and remember more.

Possible pedagogical approaches used in Science

Behaviourism	Direct teacher instruction; modelling of skills and techniques; demonstration
Constructivism	Inquiry-based learning
Social Constructivism	Teacher modelling; questioning; mix of individual, paired and group interaction/performing
Liberationism	Teacher modelling; questioning; mix of individual, paired and group instruction
Learning, working and talking about Science	Being introduced to the key vocabulary relating to Science so that all children can confidently articulate their ideas, knowledge and skills within the three strands of biology, chemistry and science.

In Science, the following approaches will be used, and be evident in pupil discussion, observations and work in books, in order to ensure that the Science learning opportunities are as effective as possible and that pupils progress throughout the year and across year groups during their Science experiences in school:

Teaching Sequence in Science:	Pre teaching: Look at and recap previous knowledge/skills that are relevant to the new learning.
	Teach key ideas: 4 per science unit every half term
	Technical vocabulary explained: Specify key vocabulary to be used and its meaning.
	Activities for learning: Provide opportunities for the children to work scientifically with the teacher acting as the facilitator.
	Time for individual reflection on the learning.

Roles and Responsibilities

The role and responsibilities of the Science leader is to:

- allocate and monitor the effective use of resources within a delegated budget;
- monitor standards to ensure high quality teaching and learning. This may include pupil

- discussion, work scrutiny, lesson observation and moderation of work;
- involve staff in the development of the subject within school;
- keep staff informed of developments within science;
- ensure the school follows National Curriculum guidelines;
- evaluate the needs of the school and develop plans to meet those needs;
- support the needs of staff in regards to science;
- evaluate and promote appropriate use of resources by children;
- promote a positive attitude to science across school;
- integrate new science resources into the curriculum and train staff to ensure confidence in their use;
- liaise with external groups and individuals in relation to standards in the subject;
- be accountable for the standards within the subject.

The role and responsibilities of class teachers is to:

- identify opportunities to embed science across the curriculum as appropriate;
- provide opportunities for all pupils to use a range of equipment and resources in the classroom and across school;
- ensure reasonable adjustments are taken to ensure all pupils can access the science Curriculum e.g. providing recording templates, readers for assessments, scoop ups, etc
- evidence teaching and learning as appropriate to the scheme of work (written work, electronic work, planning);
- Carry out risk assessments as required (using science hazard cards)
- make informed judgements of pupil attainment in science;

Science Principles agreed by whole school

Successful delivery of our science curriculum is guided by the nine principles agreed by staff and pupils together:

1. Children are fully engaged and excited by their investigations.
2. Children are asking and answering their own questions.
3. Children are discussing their work using scientific vocabulary.
4. Children apply their knowledge in different contexts to make connections.
5. Children design their own investigations.
6. Children are deepening their understanding.
7. Children are working well in teams/groups.
8. Children are involved in practical activities in a cross-curricular way.
9. Children want to continue learning when the lesson ends.

Health and Safety

Health and Safety guidelines in science are in line with the HIAS guidance 'Safety in Science at Key Stages 1 and 2'. An annual review is carried out in accordance with County guidance. All science planning documents will highlight any potential hazards. Where appropriate, reminders will be given to children about potential hazards and care of the equipment they are using. Free advice is available from CLEAPSS. Children are encouraged to be aware of their own safety as well, and to consider the risks involved in any activity they undertake.