Subject on a Page

Science

At St. Cuthbert's we want to enhance our pupils' curiosity, wonder and questioning while building on their natural spirit of enquiry to seek meaning and understanding of the world around them.

Intent: What do we want for all our pupils?

We want our pupils to show an interest in and sense of stewardship for the world around them from the moment they join us in EYFS and for this to develop systematically so they leave us as analytical and critical thinkers with a sound understanding of physical, biological and material sciences. We want our pupils to learn essential knowledge, scientific methods and processes and to do this whilst developing a sense of curiosity, confidence, excitement and wonder about the world and universe around them. Our children will:

- become interested & show curiosity when experiencing science
- gain new knowledge in science while building on prior learning
- benefit from a carefully sequenced curriculum with strong links to KS3
- arrive in KS3 feeling confident so that they can make excellent progress
- recognise that science is ongoing learning everyday when experiencing the world
- enrich knowledge with extra curricular learning and learning beyond the classroom

Implementation: How we sequence & teach our science curriculum

Curriculum Design

Our curriculum follows the National Curriculum programmes of study so that pupils learn sequentially and revisit key concepts in a spiral of learning, deepening their understanding each time they revisit a topic. As they move through the school, pupils will continue to broaden their scientific knowledge and view of the world through exploring, testing, developing ideas, questioning and exploring relationships. Scientific enquiry will be at the heart of the curriculum and opportunities to develop scientific skills through investigative opportunities. All children will experience the three disciplines of biology, chemistry and physics with a focus on their use of scientific vocabulary and their ability to confidently and independently record their findings like a scientist.

	Autumn		Spring		Summer	
EYFS	Senses	Seasons	Changing State	Foreces	Living things	Floating and sinking
Year 1	Animals including humans	Seasonal changes		Everyday materials	Plants	
Year 2	Everyday materials	Animals including humans		Living things and their habitats	Plants	
Year 3	Animals including humans	Rocks and soils	Forces and magnets	Light and shadow	Plants	
Year 4	Living things and their habitats	Animals including humans	States of matter	Electricity	Sound	
Year 5	Living things and their habitats	Animals including humans	Forces	Materials	Earth and beyond	
Year 6	Animals including humans	Evolution and inheritance	Light		Living things and their habitats	Electricity

Teaching & Learning

Our science curriculum is taught sequentially over time to develop scientific knowledge and skills from EYFS to Y6 in preparation for transition to KS3. All teaching and learning begins with knowledge which leads onto enquiry and wonder from our pupils. From this, the children can apply this knowledge and enquiry to practical investigate science to explore hypothesis and help them to consolidate and further their learning. We encourage questioning and are enthusiastic about child-led investigations. Each time a topic is taught we draw on prior learning and this ensures progression of knowledge and skills as well as providing opportunity to address misconceptions which may arise. Each lesson includes some element of recall to embed key concepts. We use adaptive teaching so all pupils can access the curriculum. This includes skilled questioning, modelling and, where necessary, breaking down tasks and providing scaffolds or guides to help individuals reach the outcome. We use STEM activities to enhance learning and provide challenge opportunities for our pupils. Every pupil has access to at least one hour of discrete science teaching per week.

Lesson Design

Lessons follow a similar approach and include the following:

Recall of previously taught knowledge

Providing a hook or an enquiry question to create excitement and curiosity

Teaching knowledge of new scientific concept

Opportunities for questioning to further understanding

Scientific investigation, enquiry or presentation

Revisiting findings or drawing conclusions

Impact: How do we assess our science curriculum?

Ongoing formative assessment is essential in supporting pupils in science to address misconceptions and provide the opportunity for teaching staff to close any gaps in knowledge as well as extending and challenging pupils. End of topic assessments are used, which have been designed by the Bishop Chadwick Trust. These gives pupils the opportunity to draw on learning from previous year groups, previous topics and their current topic. We closely monitor the progress being made in science from these assessments identifying pupils who are working at age related expectations, those who are working towards age related expectations as well as identifying any pupils who are exceeding. At the end of KS2 science is teacher assessed and reported as a core subject.

The science coordinator monitors the teaching and evidence of science through the Bishop Chadwick CET 5 strand approach which focuses on: teaching and learning in lessons, books, planning, pupil voice and data.

EXCEEDING EXPECTATIONS: Pupils who are exceeding the expectations will typically be providing evidence of achievements which consistent extends their learning beyond the confines of the task. They show a deeper understanding and mastery than their peer group.

MEETING EXPECTATIONS: Pupils who are meeting expectations in full will typically show consistent evidence of achievement which shows understanding and confidently approaches tasks and topics. They are working at an appropriate level for their peer group.

NOT YET MEETING EXPECTATIONS: Pupils are not meeting expectations may be showing weakness, gaps in knowledge or less confidence in some areas and may have needed adaptive teaching to achieve the intended outcomes.