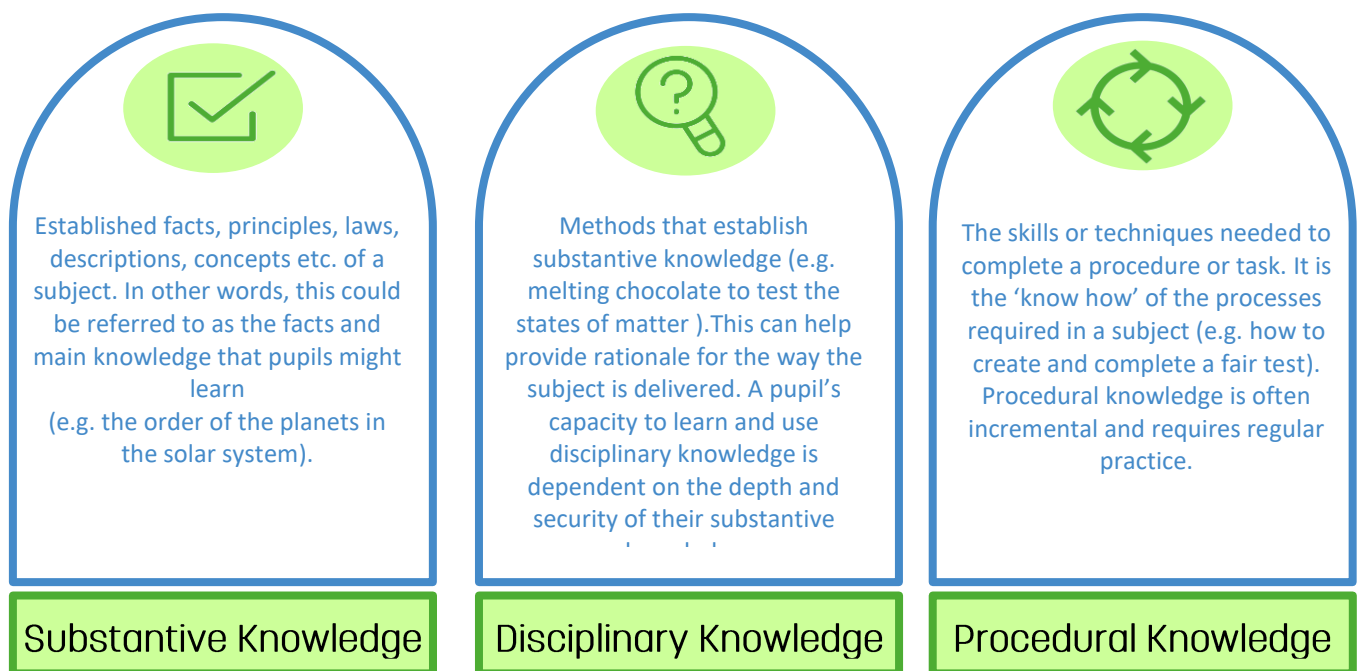


Principles of Teaching and Learning

At The Coombes CE Primary School, we ensure that our curriculum design places rich subject-specific knowledge at the heart of all learning. When planning our curriculum, we recognise that there are different types of knowledge that contribute to effective learning and the distribution and intersection of these differs between each subject.

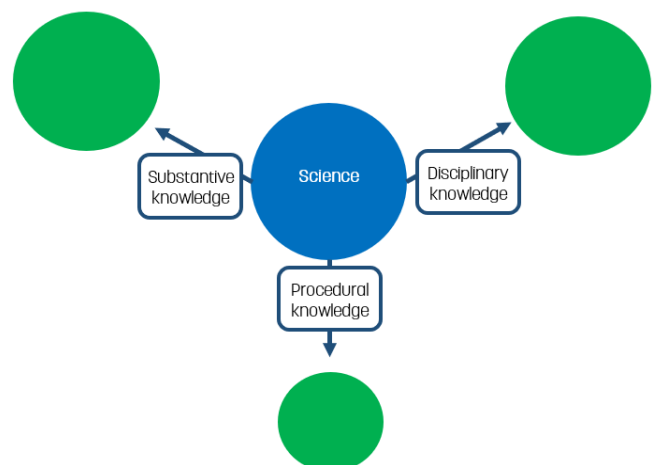
The pedagogical subject-specific approach to teaching and learning considers each knowledge type and is therefore essential in both planning and delivery, ensuring children make connections with prior learning within and across subjects, creating deeper learning experiences. Using this approach to our curriculum ensures children at The Coombes are able to confidently recall, use and apply knowledge across all subject areas, whilst also developing a love of learning and to grow and flourish in all stages of their education in our school.

The three types of knowledge



Knowledge distribution

We recognise that different subjects have different weightings of substantive, disciplinary and procedural knowledge. This infographic highlights what we consider to be the ratio of each form of knowledge within this subject:



Our Science Vision

The science curriculum at The Coombes inspires children to become inquisitive about the world around us, so that they are motivated to learn about and contribute to the ever-changing, technically advanced world. Our curriculum provides enriching opportunities to learn about scientific knowledge, investigations and concepts through the lens of each scientific discipline, through practical activities and scientific enquiries. We aim for children to be inquisitive and logical thinkers to encourage them to pose scientific questions and understand the procedures required for testing their thinking. Our enquiry-based pedagogical approach ensures children become curious scientific thinkers.

Curriculum structure

Science is taught in units, with one taught each term. Each unit will incorporate the use of a knowledge organiser that determines the facts that children will be learning, which will also specify the aspirational scientific vocabulary that children will be using throughout a unit. Teachers will create purposeful opportunities to make links to prior knowledge and children's experiences in everyday life and provide chances for children to pose scientific questions. Scientific theory is linked to famous, notable scientists when appropriate e.g. how Isaac Newton discovered gravity and the impact of this knowledge in the scientific world today. We ensure that the Working Scientifically skills are built-on and developed throughout children's time at school so that they can apply their knowledge of science when using equipment, conducting experiments, building arguments and explaining concepts confidently and continue to ask questions and be curious about their surroundings.

Units are taught based upon different scientific concepts to allow children to learn about the different aspects of the curriculum. Our concepts are as follows:

Scientific concepts	Working Scientifically	Science and Technology for the future	Understanding Science
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Key Stage Two

Key Stage One

Early Years Foundation Stage

In Early years, children begin their scientific journey by responding to enquiry questions such as in their natural environment. Children will be encouraged to talk about what they notice and use different equipment to explore possible answers.

Children in Key Stage One learn about science through the lens of observation, looking at and learning about the natural world. Children will also begin to learn about scientific enquiry, learning how to ask simple scientific questions and suggest ways to find the answers. Pupils will learn about plants and animals, but will also observe seasonal changes and link this to knowledge about weather. KS1 children also begin to develop knowledge of materials and their properties.

Throughout Key Stage Two, the disciplines of biology, chemistry and physics are the basis of scientific enquiry. Topics include space, electricity, animals and their habitats and properties of materials. Children learn about notable scientists through the lens of their findings and investigate enquiry questions to produce fair tests. Key Stage Two children also learn to report observations and findings scientifically, using all aspects of scientific enquiry and appropriate vocabulary within their practical write up.

We plan and sequence units based on the National Curriculum objectives.

Milestones and assessment opportunities

Our milestone objectives and assessment opportunities ensure that there is clear progression and we know how to assess those types of knowledge and outcomes within a unit, assessing the key scientific skills within new contexts.

Vocabulary

Tier 2 and Tier 3 vocabulary that is specific to each scientific discipline, as well as in reference to scientific enquiry is planned and delivered over each unit, building a bank of both words and knowledge items linked to their definitions, over time. This vocabulary is a core part of our knowledge organisers, and is specifically taught and referred back to.

Cross curricular links

Our school values are part of everything we do. To ensure that is seen within the curriculum, we make explicit links to our values, as well as British Values, Eco / Forest School and Rights Respecting Schools.

It is also important to understand how subjects can work with each other, so there are specific links to other subjects outlined in the Unit Maps.

Impact

We measure the effectiveness of our curriculum in the following ways:

- Pupil data tracking (PITA grids and Target Tracker)
- Book scrutiny
- Monitoring of lessons and planning (including from governors and external validation e.g. TKAT or WBC)
- Pupil conferencing

Supplementary support

We utilise the following support within our curriculum for this subject:

- STEM subscription
- TKAT subject network meetings
- Primary Science teaching Trust resources
- Explorify resources