







Science at Shankhill C of E Primary School

Our carefully planned and progressive science curriculum is designed with the target of all children becoming scientists.

In most lessons there will be a balance of knowledge (sticky knowledge), vocabulary and scientific skills such as identifying and classifying.

Mixed age classes allow for a more personalised approach to learning and teaching, meeting the needs of all the children more effectively, supporting the less able and stretching the more able appropriately. Some children do work with younger or older children depending on their individual need.

<p><u>Curriculum Basis</u> Our curriculum teaches the entire EYFS Framework through Development Matters 2021 and the National Curriculum 2014 and is based on current evidence-led practice for pedagogy and learning. Subject knowledge and workload is well supported through research and evidence-led practice and resources from CUSP (Curriculum with Unity Schools Partnership).</p>	<p><u>Mixed Year Coverage</u> As we have two mixed-age classes, children come across knowledge and vocabulary in a two or four year rolling program to ensure National Curriculum coverage, whereas skills are built upon each academic year. Children will build on and deepen their scientific knowledge from year to year, seeking patterns and making links to prior learning.</p>	<p><u>Assessment</u> After each science unit, teachers will assess the children's retention of the knowledge they have gained and how their working scientifically skills have developed. By comparing pre and post learning questions and using open ended questions that require children to connect and explain their learning, through the disciplinary and substantive concepts, which are the focus of that particular science study.</p>
<p><u>SEND</u> The use of knowledge notes allows teachers to make reasonable adjustment for pupils with SEND / EHCP to help make sense of the content. Oral rehearsal allows pupils to formulate and practice responses before recording or writing these down. Pathways enable pupils to record and verbally share their knowledge and understanding, removing the pressure of extended writing.</p>	<p><u>Retrieval</u> Revisiting is inherently built into the architecture of our science curriculum. Teachers should seek to revisit key vocabulary and knowledge as frequently as possible, such as what living things need to survive. The cumulative nature of our curriculum, means new content is connected to prior learning and this eases the load on children's working memory.</p>	<p><u>CPD</u> All teaching staff take part in regular (once a term) professional development (CPD) during staff meetings with the science lead sharing the latest research and developments relevant to this subject. All staff have the opportunity to take part in their own CPD with relevant science courses signposted. Staff also have access to CUSP, which provides a range of independent support and CPD opportunities (such as: example planning, training videos).</p>
<p><u>Six phase lesson</u> Our clear, cumulative curriculum is taught through our six phases of learning. They connect where new learning fits in with prior learning. New vocabulary and knowledge are explained. Staff share example, classes attempt work together before children apply independently. Then new learning is challenged further.</p> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;"> <div style="text-align: center;"> Connect</div> <div style="text-align: center;"> Explain</div> <div style="text-align: center;"> Example</div> <div style="text-align: center;"> Attempt</div> <div style="text-align: center;"> Apply</div> <div style="text-align: center;"> Challenge</div> </div>	<p><u>Monitoring</u> Our monitoring cycle is planned across the year and our 3 year school improvement cycle. When science is in focus, there is additional time and resources budgeted so that a deep audit, review and evaluation of impact can be carried out, and actions completed. When a science is not a main focus, leaders will complete light touch monitoring as outlined within their action plans. Leaders and staff work collaboratively to monitor and evaluate the impact of the science curriculum using a variety strategies, including: Pupil Book Study, Learning Walks, Pupil Voice and Seeking views of other stakeholders: parents, carers, staff and governors.</p>	<p><u>Experiential Learning</u> We will provide children with a range of hands on learning opportunities (to bring the topics to life), such as: local experiences, museum visits, science presentations/festivals and forest schools.</p>

Our science key concepts, long term overview and EYFS to KS2 documents show how:

substantive knowledge (subject knowledge and explicit vocabulary used to learn about the content) and

disciplinary knowledge (working scientifically skills)

progress from Nursery through to Y6 and beyond.

Our substantive concepts (biology, physics and chemistry), are used as a vehicle to connect the substantive knowledge. **END GOALS.**

Our disciplinary concepts (identifying & classifying, pattern seeking, research, observing over time, fair & comparative testing) support children to think as scientists. Each scientific unit will have two or three main disciplinary concepts for staff to focus children's scientific thinking on. Although most disciplinary concepts will be touched on briefly in each topic, to enable children to connect and build on previous learning, as well as well prepare for future learning.

Learning Sequence

For example in understanding chronology you can see that in:

- Through understanding the world; EYFS pupils know about life-cycles of plants and animals e.g Harvest the sunflower seeds / pumpkin seeds
- In KS1 children begin to understand what living things need to survive and will observe growth over time
- In Lower KS2 children can begin to explain what nutrients are and where we get them from.
- In upper KS2 they go deeper into living things by looking at the circulatory system, what nutrients we need to survive and reproduction.