

Subject Key Summary Points

Subject	Science
<p>Overall Curriculum</p>	<p>AnDaras has used the latest pedagogy, research and understanding of local contextual needs to structure the curriculum design to ensure the growth of capability mature children who exhibit a sustained curiosity for learning. The ‘lived values and experiences’ of pupils are determined by the individual school and should run through all operational elements of curriculum provision.</p> <p>At Lew Trenchard school we believe that science is a body of knowledge built up through experimental testing of ideas. Science is also a practical way of finding reliable answers to questions we may ask about the world around us. Science in our school is about developing children’s ideas and ways of working that enable them to make sense of the world in which they live through investigation, as well as using and applying processing skills. This will feed into their body of knowledge; it will enhance their social and emotional capabilities of working in groups and thinking creatively and will result in children behaving in ways which exhibit a wisdom and understanding about the world they live in.</p>
<p>Pedagogy</p>	<p>Planning for science is a process in which all teachers are involved to ensure that the school gives full coverage of, ‘The National Curriculum programs of study for Science 2014’ and, ‘Understanding of the World’ in the Early Years Foundation Stage.</p> <p>Science teaching at Lew Trenchard School involves adapting and extending the curriculum to match all pupils’ needs. Where possible, Science will be linked to class themes as well as taught as discrete units and lessons where needed to ensure coverage. Teachers plan to suit their children’s interests, current events, their own teaching style, the use of any support staff and the resources available. We encourage teachers to take the opportunity to learn in the natural world and use its timings to engage children’s curiosity in Science, making links to previous learning whilst responding to the spontaneous questions children have about the world around them. We believe it is possible to follow a structured, thorough curriculum and teach inspired and timely lessons simultaneously with good quality planning.</p> <p>Teachers and teaching assistants support pupils to develop a solid understanding of things occurring around them in their day-to-day lives. Children are encouraged to be creative and inquisitive as they participate in activities. Pupils are encouraged to use their natural questions that arise while taking part in exploratory play in specific scientific areas as well as areas that link across the EYFS framework.</p> <p>Knowledge</p> <p>Support and scaffolding is provided in all Science lessons and is done in various ways, such as:</p> <ul style="list-style-type: none"> • setting challenging age-related knowledge, quizzes and vocabulary based on a cohesive whole school plan which ensures appropriate prior skills, knowledge and understanding; • small, differentiated target steps for all children to move through at a pace that suits their needs; • timely support and intervention; systematically and effectively checking pupils’ understanding throughout lessons;

	<ul style="list-style-type: none"> • ensuring that marking and constructive feedback is personal, frequent and of a consistently high quality – enabling pupils to understand how to improve and develop their work - with planned in time for children to respond to feedback; <p>Capabilities</p> <p>Pupils are given opportunities to develop social and emotional aspects of their development alongside their knowledge about Science. Science is a subject which requires peer discussion, so children are given various opportunities to communicate clearly and rationally, listen to each and develop rational thought processes. They are also given clear planned challenges to work in groups which extend their ability to participate in group work and take a leadership role in investigations. They are also extended regularly to make links and think creatively about the connection between their learning from one conceptual lesson to another. Over the course of a unit, children will have immersed themselves in a variety of lessons which will develop their role as Scientists, with their capabilities being developed alongside the knowledge they acquire.</p> <p>Wisdom</p> <p>As children learn to work scientifically and gain deeper understanding of the Science Units of Study, there is a behavioural response expected which exhibits as WISDOM. This will be identified and encouraged in the following ways:</p> <ul style="list-style-type: none"> • Children test ideas and concepts with a rational approach (rather than accepting ideas without any testing) • Children make rational arguments which follow a clear line of thought (rather than not noticing contradictory arguments) • Children behave with care and respect in the natural environment with plants, animals, their diet, teeth, etc (rather than knowing what is a healthy behaviour but not aligning their lifestyle with this) • Children make contributions to the wider community based on knowledge of the world around them (such as learning about waste and joining the student council to contribute ideas to school wide change in how we deal with rubbish) • Groups of children become more able to communicate and listen with care. • Additional questions are asked which stem from curiosity and a desire for increased understanding as their interest in the world around them brings them a healthier and more informed outlook. • Children become more hopeful rather than overwhelmed with climate anxiety; by learning the subject and engaging with visits to Eden, from Biffa, following WWF content, etc, there is a forum for children to contribute towards positive change where they are encouraged to study innovation and make new links rather than feel disconnected and overwhelmed by climate change.
<p>Assessment</p>	<p>Assessment is regarded as an integral part of teaching and learning and is a continuous process. It is the responsibility of the class teacher to assess all pupils in their class. Pupil’s work will be assessed in line with the Trust Assessment Policy. Teachers will formatively assess during lessons and teaching sequences as well as summative assessments at the end of units using HeadStart Assessment tests. All classes take part in a whole school assessment activity every term which focuses on a different aspect of Working Scientifically to align the progression of skills across the Key Stages. Science attainment is reported to parents at the end of each academic year.</p>

	<p>Formative</p> <p>Assessment is regarded as an integral part of teaching and learning and is a continuous process. All sessions should begin with a recap/recall of previous learning. Teachers should use skillful questioning to gauge starting points, to assess current understanding and knowledge, to ensure concepts have been acquired, to identify misconceptions. This formative assessment should support the teacher in adapting lessons to ensure pupils are learning new learning, building on prior learning, and making links between new and previous learning. At the end of each session, teachers should use assessment tools to ensure that the intent of the lesson has been achieved, to help plan for the following session and to support building a picture of the pupils' progress for final summative assessments. It is the responsibility of the class teacher to assess all pupils in their class, this will be triangulated with marking, TA feedback and pupil self-assessment. Any misconceptions are addressed with immediacy and the impact of targeted teaching reviewed.</p> <p>Summative</p> <p>It is the responsibility of the class teacher to assess all pupils in their class. Each child is assessed termly, against the NC criteria and recorded annually on iTrack. Pupils produce an outcome to demonstrate their unit learning. At the end of a whole unit of work, the teacher makes a summary judgement about the work produced. Teaching staff are provided with a skill assessment sheet which, when completed, indicates the children who have met, have not met or have exceeded age-related expectations for that geographical focus. We pass this information on to the next teacher at the end of the year. Reports to parents are given via parent meetings and pupils' attainment is reported via an annual report.</p>
<p>Culture</p>	<p>Science is an important contributor to the Trust ambition to develop the whole child through the acquisition of wisdom, knowledge, and skills.</p> <p>Science is valued as an important key subject that sits centrally in the curriculum, linking to learning in Maths, DT, Art observation, Geography, ICT, History. It is central to the questioning and observations children make in everyday conversation and themes such as checking how reliable evidence is, arguing a rational point, thinking about what knowledge is, creating a fair test, observing how something could be unreliable or relating knowledge to how the world works. The Science curriculum is apparent in the school's culture and traditions: looking after ourselves, eating healthily, keeping our environment clean, recycling our waste, watering our school plants and caring for our school animals. The culture of our school is based on a respect and keenness to learn about and care for the world around us. This is also evident in enrichment activities such as trips to local Scientific areas of interest e.g. Eden or mining/Environmental days planting/animal care/research projects.</p>
<p>Systems</p>	<p>During Key Stage one, pupils observe, explore and ask questions about living things, materials and the world around them. They begin to work together to collect evidence to help them answer questions, find patterns, classify and group objects, research using a variety of sources and carry out fair testing. Pupils use reference materials to find out more about scientific ideas. They share their ideas and communicate them using scientific language, drawings, charts and tables. Science lessons in Key Stage one is either taught discretely as part of an S Plan which is teacher created and checked by the Science leader or where possible connected to other curriculum areas. The resources to inform the S Plans include TigTag, Explorify, STEM and TAPS Working Scientifically focused assessment activities. Planning Matrices with prior and subsequent knowledge, common misconceptions, Key Vocabulary, examples of high-quality investigation ideas and differentiated planning resources are all provided to</p>

	<p>aid the teacher's S Plan creation. This enables Science to accommodate the need and knowledge of the cohort and draw on teacher expertise and experience.</p> <p>Children are encouraged to extend the scientific questions that they ask and answer about the world around them. Pupils carry out a range of scientific enquiries including observations over time, pattern seeking, classifying, grouping and researching using other sources (including computing resources). Children in Key Stage Two learn to plan science investigations by only changing one variable to make it a fair test. As well as the above resources, Research projects are supported by Babcock sets of pre-ordered themed books, and HeadStart tests are used as assessment materials at the end of each unit.</p>
<p>Policy</p>	<p>Lew Trenchard School understands the need for all pupils to develop their scientific ability as an essential component relating to all subjects and as a subject in its own right. A good understanding of scientific knowledge and conceptual understanding helps to support pupils work across the curriculum. The policy for Science outlines how this is achieved with progression across the whole school, including assessment.</p> <p>https://www.lewtrenchard.devon.sch.uk/web/curriculum_end_points/623879</p>
<p>Perceptions</p>	<p>The monitoring of the standards of children's work and the quality of learning and teaching Science is the shared responsibility of the S.L.T and the subject leader. The work of the subject leader also involves supporting colleagues in the teaching of Science, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school. A named member of the school governing body is briefed to overview the teaching of Science in the school. Monitoring shows the following of systems is good and teachers are planning and executing effective and inspiring Science lessons. The areas to work on are developing the use of Scientific vocabulary and the inclusion and challenge of all pupils of all stages of ability. Knowledge of certain physics subject areas also need training and careful signposting for staff to create clear explanations and avoid misconceptions.</p>