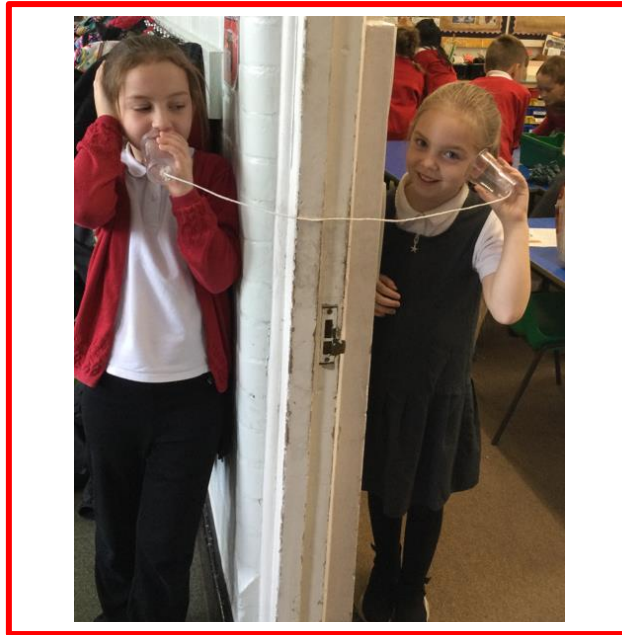


Science



Curriculum Booklet

Science Intent

At Tanners Brook, we believe that science is a vital part of our pupil's learning as such, we aim to provide a high-quality science education embedded through meaningful and memorable learning experiences. Across the school, we intend to provide all pupils with the substantive and disciplinary knowledge required to support their understanding of scientific concepts and the world around them. This will help them to recognise the importance of science in their everyday lives.

At Tanners Brook, we want our children to be confident, reflective, and critical scientists. Pupils should therefore be driven by curiosity and genuine personal excitement. Our broad and balanced science curriculum will be delivered and embedded through interactive, engaging, and informative learning opportunities and will enable children to become effective scientists.

Through development of pupil metacognition and independence, we aim to enable children to make sense of and explain natural phenomena and occurrences, predict how things will behave, and analyse cause and effect. To support this, children will be encouraged to examine the world around them by asking a range of important questions (i.e. why would... how might...).

All pupil's at Tanners Brook will:

- Develop their both their substantive and disciplinary knowledge through the specific disciplines of biology, chemistry, and physics.
- Develop disciplinary knowledge so they can understand the nature, processes, and methods in science.
- Use a range of scientific enquiry to help them answer questions about the world around them.
- Develop the substantive knowledge required to understand the uses and implications of science today, and for the future.
- Apply their mathematical knowledge to their understanding of science. This will include collecting, presenting and analysing data.
- Develop their scientific vocabulary, which will support the acquisition of scientific knowledge and understanding.



Science Implementation

At Tanners Brook, all children will be provided with a broad and balanced science curriculum which reflects the equality and diversity policies and practice in school. The national curriculum will also be shaped by our school vision which encourages children to strive to achieve their personal best and make their community proud regardless of background, ability, and additional needs.

To ensure we achieve this, the science curriculum at Tanners Brook is:

- Ambitious for all pupils.
- Coherently planned and sequenced to highlight larger concepts and aspects of science as well as linking to previous learning. This ensures that skills and knowledge are built on year by year and sequenced appropriately to maximise learning retention for all children.
- Designed and developed for pupils with special educational needs and/or disabilities so everyone can achieve their personal best.

The foundations of becoming a scientist begin in the Early Years through the Early Learning Goals (ELG) The Natural World, under the area of learning Understanding the World. Reaching a good level of development against this goal can be demonstrated in many learning opportunities but it is likely to see:

- The encouragement of awe and wonder about the natural world
- Children talking about and noticing the similarities and differences in what they see, hear, feel taste and smell in the outside provision, particularly linked to seasons
- Sharing books about weather, the human body, the world, growing, etc
- Children recording 'data' in different ways
- Exploration of how things work and change, predicting what will happen
- Scientific opportunities for exploration including magnets, light sources, ice melting, etc
- Learning about life cycles

This learning helps our young children begin to make sense of the world around them and these foundations will support them as they start to learn the National Curriculum for Science in KS1.

At Tanners Brook, we build on our children's natural curiosity and work with them to develop a scientific approach to problems. We encourage the children to do their personal best by nurturing open-mindedness, self-assessment, perseverance and developing the skills of investigation. We focus on the use of scientific language in all our verbal and written work and teachers will ensure that all children are exposed to high quality teaching and learning experiences. These experiences will hook the children's

interest, enabling them to develop a sense of excitement and curiosity about natural phenomena and the world around them. Children will always be encouraged to ask questions and work scientifically to further their conceptual understanding and scientific knowledge.

At Tanners Brook, you will see:

- Science given prominence with weekly whole class Science lessons (supported by differentiation).
- Well planned science teaching embedded through meaningful, memorable, practical learning experiences.
- Lessons adapted and developed for pupils with special educational needs and/or disabilities to enable everyone to access the curriculum.
- Differentiated lessons and recording strategies to ensure all pupil needs are met and that writing is not a barrier to learning.
- Opportunities for pupils to develop and build on their substantive and disciplinary knowledge so they become increasingly independently.
- Links being made, both explicitly and through questioning, or to prior learning.
- Science trips used to enhance the curriculum, where appropriate.
- Pupils exploring and accessing our school Science Hub. This will support knowledge and skills acquisition as well as retention.
- Curious pupils willing to question the world around them and work scientifically to further their conceptual understanding and scientific knowledge.
- Subject leaders being a champion for science and supporting colleagues.



Some children with SEND might find accessing the Science curriculum difficult. Their barriers may include:

- Difficulties with literacy and/or Maths
- Difficulties with attention/concentration
- Understanding of language, in particular subject specific vocabulary
- Difficulties with retaining new information

At Tanners Brook we will support all our children to reduce these barriers through:

- Pre-teaching
- Clear modelling of tasks with examples
- Minimising distractions in the classroom
- Designing tasks into manageable chunks
- Finding other ways for the children to record their learning beyond writing
- Incorporate practical resources to support understanding
- Following a lesson structure in all lessons

Whole School Provision Map 2024-25

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EY	Area of Learning - Understanding the World Development Matters Use all their senses in hands-on exploration of natural materials - exploring outside provision. Explore collections of materials with similar and/or different properties. Talk about what they see, using a wide vocabulary. Understand the effect of changing seasons on the natural world around them linked with wearing more clothes in Winter, days getting shorter and Christmas.		Area of Learning - Understanding the World Development Matters Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant and an animal. Begin to understand the need to respect and care for the natural environment and all living things through rich texts and hands on experiences in discovery time. Explore the natural world around them. Describe what they see, hear and feel whilst outside. Understand the effect of changing seasons on the natural world around them linked to spring and things growing. Enhancement: Life Labs Spring 2		Area of Learning - Understanding the World Early Learning Goals: The Natural World Explore the natural world around them, making observations and drawing pictures of animals and plants. Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.	
	Seasonal Changes					
1	Properties of everyday materials	Properties of everyday materials	Plants	Plants	Animals including humans	Animals including humans
2	Animals including humans	Animals including humans Enhancement: Life Labs	Properties of everyday materials	Plants	Living things and their habitats	Living things and their habitats
3	Animals including humans Enhancement: Life Labs	Rocks and Fossils Enhancement: Fossils (Thornden)	Forces and Magnets	Light	Plants	Plants
4	States of Matter	States of Matter	Sound	Electricity	Living things and their habitats	Animals including humans
5	Properties and changes of materials	Properties and changes of materials	Animals including humans	Living things and their habitats	Forces	Earth and Space
6	Living things and their habitats	Evolution and Inheritance	Light and shadow	Electricity	Animals including humans	Animals including humans Enhancement: Life Labs
	Chemistry		Biology		Physics	

Science Impact

Our broad and balanced curriculum starts right from the Early Years by introducing pupils to wide-ranging vocabulary to describe the natural world. At Tanners Brook, we recognise the importance of planning the science curriculum so that pupils build knowledge of key concepts and the relationships between them over many years. This will prevent pupils from seeing science as a list of isolated facts. We aim to build domain-specific knowledge which leads to expertise and allow pupils to remember substantive and disciplinary knowledge in the long term. Practical work will feature in our curriculum but will have a clear purpose, form part of a wider teaching sequence and will take place only when pupils have enough prior knowledge to learn from the activity. Teachers will give clear consistent explanations built on what pupils already know which will then allow pupils to confidently focus on content being learned as well as the wider curriculum links.

At Tanners Brook, we recognise that science is vital to the world's future prosperity and, being in Southampton, children from Tanners Brook School will have access to a wealth of higher learning opportunities. They will also have a broad choice of diverse career opportunities within science-based disciplines such as medicine, engineering, scientific research. Our aim is to provide our pupils with the building blocks they need to be able to access these opportunities in the future and prepare our children for life in an increasingly scientific and technological world.

By the time our pupils leave Tanners Brook, they will have developed and refined a wide variety of skills linked to both scientific knowledge and understanding, as well as scientific enquiry/investigative skills.

Our children would have experienced meaningful, memorable learning experiences and understanding of their local area, science related industry and careers. The impact of our curriculum will give our children a rich vocabulary which will enable them to articulate their understanding of taught concepts; it will also support our children to achieve their personal best so that they have high aspirations, which will see them through to further study, work, and a successful adult life.

Going forward, we will develop assessment within this subject. This will be achieved through CPD and consultation with our Science Primary Network. We will also ensure our curriculum is both current and effective by frequently reviewing it.

