

Tilery Primary School



Science

What we will offer

At Tilery Primary School our aim is to ensure our pupils are naturally curious and inquisitive and to broaden their scientific knowledge about the world around them. We aim to expand scientific vocabulary, increase our children's knowledge and curiosity of the scientific world and promote high aspirations. We encourage our pupils to develop and use a wide range of scientific skills including: thinking; discussing; questioning; predicting; investigating; observing; measuring; reflecting; hypothesizing and recording. We provide opportunities for them to use different types of scientific enquiry to answer their own questions by grouping and classifying, noticing patterns, observing over time, researching and comparative and fair testing. Our intention is to embed the use of scientific vocabulary through regular use of scientific language over time as topics are revisited. Pupils are encouraged to use skills and knowledge gained in English and Maths lessons, as well as other Foundation Subjects to enhance their learning in Science.

We enable children to experience the feelings of awe and wonder as they discover new scientific concepts and ideas. We want to develop a love, passion and appreciation for science in all our pupils and respect for all living and non-living things that they will carry with them throughout their further education and potential careers. We support all pupils; regardless of ability, gender or ethnicity, to have equal access to our Science curriculum.

The North East of England is a hub of chemical and engineering industry which could open many opportunities for our pupils. For this reason we will promote STEM opportunities, careers and activities for our pupils so that the spark ignites in them and they develop **aspirations** in these fields.

How we will deliver it

Tilery offers a carefully planned curriculum which provides children with the opportunity to progressively acquire a wealth of knowledge and information. Topics are blocked to allow children to focus on developing their knowledge and skills, studying each topic in depth. Every year group will build upon the learning from prior year groups, therefore developing depth of understanding and progression of skills. Teachers regularly refer to this knowledge and key vocabulary with meanings so that it 'sticks'. This enables children to readily apply knowledge and vocabulary to their written, mathematical and verbal communication skills. Teachers ensure pupils are aware of the scientific discipline they are studying promoting enjoyment and fostering interest in the disciplines of Biology, Chemistry and Physics. Our curriculum aims to inspire our children to understand how and why things work and for them to want to make a difference in the world.

At the start of each topic children will review previous learning and will have the opportunity to share what they already know about a current topic. In order to support children in their ability to 'know more and remember more' there are regular opportunities to review the learning taken place in previous topics as well as previous lessons.

Children have the opportunity to build on prior knowledge and link ideas together, enabling them to question and become enquiry-based learners. We use tasks from Explorify, STEM and our scheme of work to create engaging activities. Teachers check on what children already know and then invite children to think of their own questions

Skilled staff and the effective use of planned education visits and visitors enrich and enhance the pupil's learning experiences within the Science curriculum. A themed Science week each year also enhances the learning experience for all children.

In the EYFS we understand that science begins with children's very first acts of exploration. We ensure that we provide a stimulating and engaging environment (both indoors and outdoors) which encourages children's scientific enquiry. The teachers in the EYFS develop children's understanding of the world and trigger curiosity through the use of open-ended questioning.

Science is taught in topics, discreetly throughout Key stage 1 and 2. We follow a 2-year rolling programme within each Key Stage. Teachers are familiar with previous and subsequent Key Stage's content, which enables them to link to prior learning and build on previous knowledge. They are also aware of where a unit of work fits in across the curriculum - we believe this is essential in ensuring key knowledge is taught and assessed to maintain progression through the curriculum.

Ultimately, as staff we aim to nurture a love for the natural world, excitement for future possibilities in science and provide opportunities for creative investigations and problem solving. They develop children's curiosity and **inspire** them to pursue scientific enquiry. The science curriculum at our school provides opportunities to develop children's understanding of science within the wider world and encourages them to **aspire** to potential career opportunities within our area. We aim to do this through exploring and investigating within our local community and by creating opportunities for children to meet with local and national industries via our **Inspiration for Aspiration Days**.

During lessons :

- Key Scientific Concepts are discussed at the beginning of each unit and teachers explain when they were last taught to enable children to understand their scientific learning journey
- carefully chosen vocabulary is displayed alongside the concepts and is referred to throughout the topic
- lessons begin by reviewing previous learning allowing the children to demonstrate their skills and to revisit the knowledge required to fully access new learning
- shared learning objectives ensure pupils understand what is expected of them and the focus of the learning enabling children to self-evaluate their understanding
- teachers use effective questioning, and provide opportunities for discussion to support the development of vocabulary, which is explicitly taught and modelled by teachers in every lesson
- opportunities are planned for children to explore, question, predict, plan, carry out investigations and observations as well as conclude their findings
- children present their findings and learning using science specific language, observations and diagrams
- quality first teaching ensures children build on prior learning and knowledge
- pupils are encouraged to make connections both within and across subjects
- teaching staff are skilled when assessing children's learning and knowledge throughout the topic

- pupils are supported to make rapid and sustained progress
- clear end points and assessment materials ensure that accurate judgements are made on pupils' achievement.
- Pupils and staff evidence what has been learned in lessons within their Science book and displays. Further photographic and video evidence is collected within a Science Evidence folder, saved on the staff shared area.

We know that the quality of lessons offered to the children are good through evidence collected during learning walks, lesson observations, work scrutinies and pupil voice activities. The science subject leader is able to ascertain what children have remembered, what they have learned, what they are able to talk about and the knowledge and skills they have acquired during each scientific topic.

The difference it will make

The successful approach at Tilery Primary School results in a fun, engaging, high-quality science education that provides children with the foundations and knowledge for understanding the world. Children acquire the appropriate knowledge and skills, **inspiring** them to succeed in the next stage of their education and **aspire** to potential careers. Our children at Tilery love Science!

Children know more, remember more and understand more about the science curriculum. Children retain prior-learning and explicitly make connections between what they have previously learned and what they are currently learning. This is evidenced during learning walks, lesson observations, work scrutinies and pupil voice activities and by using the school assessment materials, which identify clear and progressive end points. Our tracking system, which teachers complete at the end of each topic, enable us to assess progress. Data from the assessments is then collated to enable subject leaders to monitor progress and attainment across the school. Should issues be identified, subject leaders can address this directly with class teachers.

The impact of this curriculum will ensure Tilery children have :

- a wider variety of skills linked to both scientific knowledge and understanding, and scientific enquiry/investigative skills;
- a richer vocabulary which will enable them to articulate their understanding of taught concepts;
- confidence and a love of learning for all things science;
- aspirations to apply for a career within a scientific field.