Town Lane Infant School Science Policy

Article 28- Every child has a right to an education. Article 29- Education must develop every child's personality, talents, abilities.

The intent of the Science curriculum at Town Lane Infant school is to give all children a strong understanding of the world around them and develop their curiosity to find out how and why things happen in the way they do. Children will experience science through different contexts that are engaging, contextual and appropriate for their age group. They will acquire specific skills and knowledge to help them to think scientifically using enquiry and investigation and encouraging creative thought. Children learn to ask scientific questions and discuss issues which affects their lives, their community and the world as a whole now and in the future. In addition, the children are immersed in scientific vocabulary, which aids children's knowledge and equips them with the ability to explain scientific concepts.

In the Foundation Stage children will have the opportunity to explore and investigate through a variety of first-hand experiences to develop their understanding of the world. This continues throughout Key Stage One where we approach many of our practical experiences with a "hands on" and "minds on" approach to aid conceptual understanding.

Implementation

Knowledge and understanding

Children are provided with the opportunity to:

- be curious about things they observe, and experience and explore the world about them with all their senses;
- use this experience to develop their understanding of key scientific ideas and make links between different phenomena and experiences;
- begin to think about models to represent things they cannot directly experience;
- try to make sense of phenomena, seeking explanations and thinking critically about claims and ideas.

Processes and skills

Children should:

- acquire and refine the practical skills needed to investigate questions safely;
- develop skills of predicting, asking questions, making references, concluding and evaluating based on evidence and understanding and use these skills in investigative work;
- practise mathematical skills *e.g. counting, ordering numbers, measuring, constructing and interpreting graphs and bar charts* in real contexts;
- learn why numerical and mathematical skills are useful and helpful to understanding.

Language and communication

Children are given the opportunity to:

- think creatively about science and enjoy trying to make sense of phenomena;
- develop language skills through talking about their work and presenting their own ideas using sustained and systematic writing of different kinds;
- use scientific and mathematical language, and draw diagrams and charts to communicate scientific ideas;
- read non-fiction and extract information from sources such as reference books or online resources

Inclusion and Participation

In order to ensure that all pupils can access the curriculum, adaptive teaching is used within lessons. Teachers and teaching assistants effectively support children who are working below the expected level of achievement at an individual level or within small groups.

For instance, those children who struggle to write independently will be given other opportunities to demonstrate their scientific understanding and learning.

Values and attitudes

Children should:

- work with others, listening to their ideas and treating these with respect;
- develop respect for evidence and evaluate critically ideas which may or may not fit evidence available;
- develop a respect for the environment and living things and for their own health and safety.

Foundation Stage 2-5

Implementation of Understanding the World Education EYFS Programme

Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension.

Within teacher led and child initiated sessions , children are provided with the opportunities to find out and learn about the world they live in. These experiences include:

- asking questions about why things happen;
- investigating a wide variety of objects and materials in the natural and made world;
- learning about themselves and living things;
- looking closely at similarities and differences, patterns and change;
- talking about their observations and sometimes recording them.

Impact

ELG: 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.

*The ELG is an assessment checkpoint and should not be used as a curriculum – the curriculum should be broad and balanced with a range of experiences and opportunities not limited to teaching to the ELG. At Town Lane, we have used the Development Matters document to support the progression of knowledge and skills from 2-5. Checkpoints will be made termly to assess whether children are on track to meet these developmental stages.

Organisation and delivery of the Curriculum in Key Stage 1

The children in KS1 are taught through the National Curriculum. In Year One there are four main areas that must be covered throughout the year with the addition of 'Working scientifically' and 'eco education'. The four areas are:
*Plants
*Animals, including humans
*Everyday materials
*Seasonal changes

In Year Two there are four main areas that must be covered throughout the year with the addition of 'Working scientifically' and 'eco education'.
The four areas are:
*Living Things and Their Habitats
*Plants
*Animals including humans
*Uses of materials

During the year, through a variety of investigations, the children will be taught to:
*ask simple questions and recognise that they can be answered in different ways
*observe closely, using simple equipment
*perform simple tests

*identify and classify
*use their observations and ideas to suggest answers to questions *gather and record data to help in answering questions.

The 'Progression of knowledge and skills' document for Science ensures that our curriculum is cohesive and progressive from entry to our school. This document can be found on the school website. It is a comprehensive resource that provides clear guidance on vocabulary, key misconceptions, key learning in each area, and the knowledge and skills within each science area. Each separate year band of teachers plan together discussing learning activities and experiences their children will meet in science each week. They not only share ideas but also plan how the resources and equipment may be used and shared between the classes. Thus, ensuring equal opportunities and experiences for all classes. Wherever possible science is integrated into other areas of the curriculum in a cross curricular approach.

The impact of teaching Science

The children's learning experiences should:

- ensure continuity of experience and progression in knowledge, ideas and skills;
- build upon the achievement of individual pupils;
- allow progression through the levels by differentiating tasks for pupils in order that they are able to access the curriculum at the appropriate level.

Assessment

Work is planned and implemented in line with the guidance from the Science National Curriculum or EYFS curriculum. Clear objectives should be set and provision made for more and less able children.
Work will be marked or discussed regularly and will inform assessments both formative and summative. There is a clear progression of knowledge and skills document which staff adhere to across the school from birth-the end of Key stage 1. Assessments are made in line with this document using the AFL Assessment for Learning questions and guidance.
Assessment will come from teacher observations and evidence from work generated which will enable the completion of Insight which will be filled in at the end of a unit of work. Science book scrutinies and pupil voice will be completed to check for continuity, progression and secure judgements and the findings and next steps will be fed back to staff.

Resources

Equipment and resources are within classrooms or contained in large plastic stacking boxes labelled appropriately for each topic and year band and stored in the science cupboard. This will allow teachers to take the equipment to their classrooms as and when they need it. There are also relevant books, and posters stored in the library.

The role of the Science Leader:

- to support the implementation of the school science policy.

- to provide a consultancy agency for members of staff suggesting lines of enquiry, give advice on methods and deal with specific problems.
- to help organise and maintain:
  resources
  schemes of work
  record keeping.
- to monitor children's work.
- to maintain contact with those people outside school who can help with advice and/or equipment *e.g. science advisory teachers, KS2 leads*
- to attend courses and meetings to keep up to date with new developments relating to the teaching of science and to exchange ideas with other teachers.
- to share information on curriculum and assessment of science with parents and governors.
- To ensure that all teaching staff have training to meet their CPD needs.

Health and Safety

As with all activities carried out in school our children's well-being and safety is a matter of our highest consideration. At Town Lane we follow the guidance on good practice contained in the LEA document: 'Be Safe'. Risk assessments for Science activities are carried out and kept in the Risk Assessment file.

In line with the DDA we aim to increase access to the Science curriculum for pupils with a disability, expanding the curriculum as necessary to ensure that pupils with a disability are as, equally, prepared for life as other pupils. Specialist aids and equipment will be provided to assist these pupils in accessing the curriculum as and when the need arises.

ICT

At Town Lane, we have access to 'Espresso' which provides video clips, activities, games and other resources that can be used to promote the teaching of science. Staff are encouraged to share useful websites and store helpful resources on the shared drive on the school server.

Equal Opportunities:

We incorporate science into a wide range of cross-curricular subjects, using a variety of equipment and teaching methods to ensure that all children have equal opportunities in the participation of science lessons.

Teachers will take positive action to ensure opportunities to develop science skills take account of girls' and boys' individual experiences, and that starting points will differ for each child. Teachers will consider grouping in lesson planning e.g single/mixed sex, ability, friendships.

In the science lesson we support children with English as an additional language in a variety of ways e.g. repeating instructions, speaking clearly, emphasising key words, using picture cues, playing games etc.

Children identified as needing further support in Science at Year 1 and 2 are invited to join Science Club to further enhance the curriculum and develop knowledge, skills and understanding.

Date: 21/06/23