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**Science Policy**

This policy should be read in conjunction with our Assessment Policy, our Teaching and Learning Policy and our Marking Policy.

**Intent**

Science teaching at Trekenner Community Primary School aims to give all children a strong understanding of the world around them whilst acquiring specific skills and knowledge to help them to think scientifically, to gain an understanding of scientific processes and an understanding of the uses and implications of science, today and for the future. This is fundamental in our drive for pupils to become effective local and global citizens of the future. We live in a world which is dominated by science and where an understanding of the key principles of the subject are essential in being able to make life-decisions and to contribute effectively to the local and global world. It is therefore our intent to support pupils to gain the knowledge and skills to be scientifically literate. We aim for our pupils to have the skills, knowledge and the confidence to engage in scientific debate on issues like climate change, vaccines and others that may arise and vitally we want them to have the knowledge to make informed decisions on key matters that affect them.

**Implementation**

At Trekenner C.P. School, scientific enquiry skills are embedded in each topic the children study and these topics are revisited and developed throughout their time at school. Topics such as ‘Plants’, are taught in Key Stage One and studied again in further detail throughout Key Stage Two. This model allows children to build upon their prior knowledge and increases their enthusiasm for the topics whilst embedding this procedural knowledge into the long-term memory. All children are encouraged to develop and use a range of skills including observations, planning and investigations, as well as being encouraged to question the world around them and become independent learners in exploring possible answers for their scientific based questions. Specialist vocabulary for topics is taught and built up, and effective questioning to communicate ideas is encouraged. Concepts taught should be reinforced by focusing on the key features of scientific enquiry, so that pupils learn to use a variety of approaches to answer relevant scientific questions.

At Trekenner school pupils will be provided with the opportunity to experience a broad, balanced and enriched curriculum which encourages progression and achievement.

* Science will be taught and planned by the class teacher and will where possible link to the topic that term.
* A long term plan has been set out to make sure there is coverage of all areas of science in each year group.
* Teachers will follow the progression document in Working Scientifically to ensure all areas are covered across the key stage. This will make sure all children experience all five scientific enquiries: observation, testing, research, classifying and identifying and pattern seeking by becoming scientists in the classroom.
* Teachers will ensure there is active involvement in all Science lessons, where possible through investigation and first-hand experience.
* Pupils will develop their knowledge and understanding of important scientific ideas, processes and skills and to relate these to their everyday experiences.
* Teachers will encourage pupils to explore different ways of thinking and questioning.
* Pupils will be given the opportunity to built upon prior knowledge through careful assessment and planning of activities this includes the flashback element at the beginning of each lesson.
* Teachers will make learning purposeful, to make cross curricular links and for children to experience ‘real life’ concepts- (Maths, English, Computing in particular)
* Pupils will increase children’s scientific vocabulary and the language of science through the teaching and learning and the use of knowledge organisers.
* Lessons will be planned to ensure children use a range of equipment accurately and safely through hands on investigations and observations.
* Where possible teachers will develop learning in the outdoors; to increase children’s confidence and natural curiosity of the world around them.
* Assessment will take place at the end of each unit through a topic test and then a termly progression test once a term. Results are reported on our school tracking system.

**Impact**

Teaching of Science has been and continues to be a strength at school. This is evidenced by the fact that.

* Most pupils achieve age-related expectations or greater both in topic, end of year and end of Key Stage assessments.
* Pupil conferencing reveals that pupils enjoy science.
* Our pupils regularly show their ability to question ideas and reflect on knowledge.
* Children work collaboratively and practically to investigate and experiment.
* As children progress through the school they are increasingly able to explain the scientific processes they take and justify their thinking

## School curriculum

In Key Stage 1 and 2, the National Curriculum is followed, and objectives are taught through a topic approach where possible if not the science is taught as a discrete subject. Teachers plan from a whole school long term plan and create weekly lessons for each topic. This planning frame ensures that: children make progress in science as they move through Key Stages 1 and 2, children of all abilities access particular areas of Science and develop their skills and that all children are challenged to achieve their potential throughout the school. In the Foundation Stage, staff work towards the children achieving the ‘Early Learning Goals’, within understanding the world, set out in [Development Matters 2021](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1007446/6.7534_DfE_Development_Matters_Report_and_illustrations_web__2_.pdf) to inform their planning. As Foundation Stage pupils are taught within a mixed-aged class with Key Stage One pupils, where appropriate they engage in whole class opportunities.

**Teaching and Learning**

Teaching and learning in Science accounts for ten percent of learning time within classrooms. High quality lessons include the following elements:

* *Progression* – the progress and attainment of pupils should be developed, building on previous learning.
* *Challenge* – high expectations set for individual and group achievement.
* *Differentiation –* this should be achieved using tasks and equipment that enable the children to be challenged appropriately and which ensures good progress for all ability groups.
* *Critical, Global Thinking*- the ability of pupils to think critically and to reflect on multi-cultural and global issues.
* *Decision Making*- children should be given responsibility for equipment, group organisation and, at times, their own learning.

Children in Key Stage 1 and 2 have the opportunity to observe, explore and raise questions about living things, materials and physical phenomena. They are encouraged to make links between ideas and relate them to their own understanding. Children organise and communicate their thinking using a range of thinking tools, reasoning, and simple theories. Children work collaboratively and independently to collect data and carry out investigations. They communicate their learning verbally, using scientific language, and through drawings, diagrams, charts and computing.

All lessons have two WALTs one focusing on the knowledge aspect the other focusing on scientific enquiry. Throughout lesson sequences there is an “Our Key Knowledge” slide which is cumulative and allows the progression of pupils knowledge to be tracked. Regular opportunities are made to make links with prior knowledge through weekly quick quizzes and through building in opportunities to link concepts where possible.

Learning journeys are made clear to children and all Science units have an outcome which should be focused on real life application wherever possible.

A summary of the knowledge children gain, is presented in a knowledge organiser which is stuck into pupils books, regularly referred to and set home to parents as a revision guide.

**Assessment and Recording**

Assessment opportunities are planned as an integral part of the teaching unit. Review of these assessments informs future teaching and learning.

Formative assessment occurs through observation during lessons, discussions with children, questioning and evaluation of children’s Science work and assessments made by the class teacher and recorded termly on the school assessment program. Weekly quizzes are also used throughout units to ensure retention of key information and to allow for the opportunities to consolidate and repeat concepts where needed.

Head start assessments are completed at the end of each unit and scores for this are recorded on Insight. An end of year assessment is also employed to track progress and retention of concepts over time. This is scrutinised by the Science Leader. This information is passed on to the next teacher at the end of the year.

End of Key Stage teacher assessments are also completed in Years 2 and 6. These are reported as per statutory requirements.

Attainment for the Foundation Stage is scored on the EYFSP. At the end of key stage two, sampling may take place, in line with the DfE requirements.

**Entitlement and Inclusion**

At Trekenner C. P. School, we ensure that all children have access to a progressive and comprehensive Science programme which embraces the statutory orders of the National Curriculum, taking into account individual needs. Our school makes every effort to support our children in attaining the expected levels of performance.

**Equal Opportunities**

Equal opportunity is addressed in respect of gender, race, the needs of the most able children and those with special educational needs. We ensure that Science lessons provide quality learning experiences that challenge and develop the children.

**The Learning Environment:**

The learning environment should be stimulating with a range of recorded learning outcomes and evidence of the different enquiry types on learning walls with focused vocabulary and scientific language. Children should be subject to a safe learning environment, where equipment is stored safely and easily accessible. Equipment should be selected by the children at times so they can make decisions about the best materials to use for each task. Children should be posing questions and have access to higher order thinking activities to stimulate their curiosity and awe of the subject.

**Risk Assessment**

Lessons are conducted in a secure, supportive, and disciplined manner, in line with our general school Health and Safety Policy. Vigilance is always expected. Teachers take account of both the children’s and their own health and safety when involved in science activities. Where pupils are participating in activities not covered by the whole school/ class risk assessments, they are responsible for risk assessing these activities appropriately.

Children are encouraged to consider their own safety and the safety of others. They are taught how to use equipment safely under supervision. All teachers lead by example.

**Role of the Science Leader:**

It is the responsibility of the Science leader to:

* support colleagues in their development of detailed learning plans and implementation of these in the classroom and in assessment and record keeping activities as required.
* monitor medium term plans and weekly plans to ensure progress and coverage of all objectives from the National Curriculum.
* Monitor children’s books to ensure progress and coverage and evidence of weekly learning.
* take responsibility for the purchase and organisation of all science resources.
* keep up to date with developments in science education and disseminate information to colleagues as appropriate.
* Provide the staff with CPD in science in all areas.
* Provide guidance and support to staff where pupils are not making sufficient progress.
* Based on feedback from teachers, create the Science Budget Bid.

Role of teachers:

* To follow planning, teaching and assessment procedures as outlined in this policy and in the wider teaching and learning/ assessment policies.
* To ensure that they inform the Science leader at least one term in advance if they require any specific high-cost resources for their unit (high-cost resources cover anything that would not normally be expected to come from the normal class budget)
* Ensure that lessons and activities are appropriately risk assessed and pupil safety is always high profile.
* Ensure learning is differentiated appropriately to allow access to pupils with specific educational needs.
* Ensure that marking of books, assessments, and inputting of data onto Insight is completed in

a reasonable timeframe as outlined in the school non-negotiables.

Role of support staff

* To prepare resources under the guidance of the class teacher.
* To ensure that they are aware of the safety of any pupils they are specifically working with.
* Provide feedback to the class teacher on pupils learning within the lesson where appropriate.
* Ensure they are familiar with the planning and knowledge/ skills delivered within the lesson so that they can support learning effectively.

Role of the headteacher: (note this academic year the Science leader is the headteacher so duties will be combined)

* To oversee implementation of the Science curriculum ensuring it is sufficiently matched to the school intent and is effective.
* To consider budget bids fairly ensuring resources that are required are purchased.
* To monitor the work of the Science leader and provide support and challenge as appropriate.
* To ensure the governing body have appropriate information about the effectiveness of the subject.

###### **Resourcing**

The Science Subject Leader, with the Headteacher (currently the same person), is responsible for the ordering, costing and allocation of resources to support the teaching of Science.

A review of resources is carried out periodically which leads to a prioritised list of requirements. This is funded within the school’s budget plan for the financial year.

###### Review

This policy will be reviewed every two years.

Marc Wheeler Headteacher and Science Leader January 2022