



Dishforth Airfield Community Primary School: Science Vision Statement

Inspiring our children to be inquisitive learners who have a thirst for understanding the world around them.

Intent

By building on from Early Years work on understanding the world, our intent is to support children to develop their scientific knowledge and conceptual understanding in the different elements of Science and to equip them with enquiry-based skills to investigate, compare, classify and research concepts. We believe that these skills will encourage our children to become inquisitive learners who will have a thirst for understanding the world around them. We strive for our pupils to know more, remember more and understand more about the scientific concepts they explore during their time at our school. We are very aware that our school community is highly mobile and therefore we ensure that we make good use of pre-assessment and pre-teaching to identify and overcome any misconceptions or gaps in children's learning. We adapt our planning to meet the needs of the children in our care to ensure that they all receive high quality, relevant and meaningful Science learning, no matter their starting point.

At Dishforth Airfield Primary School, we are strong believers that Science should be fun, relevant and practical. Science lessons in our school encourage children to ask questions, provide opportunities for them to explore, plan fair tests and investigate areas of interest and provide our children with the skills and understanding to use a range of resources and equipment to support their investigations. We believe that these opportunities and experiences provide children in our school with the understanding of why Science is relevant to their lives now and how it will continue to be relevant in the future.

Implementation

Key Principles:

- Science is **fun, relevant** and **engaging** for children in our school.
- Encourage children to be **inquisitive** and to **ask questions**.
- Science in our school is **hands on** and **practical**.
- Use a **range of resources** to **investigate** and **explore** including our **outside areas**.
- Encourage **child-led investigations** where children can **draw their own conclusions**.
- Aim to provide **cross curricular** Science experiences.

- Aim to inspire our children to understand the **relevance of science in the world** now and in the future.
- Our children will **know more, remember more and understand more** about Scientific concepts.



Organisation of teaching and learning

Teaching and learning in all three key stages takes place in a range of environments.

Early Years Foundation Stage

In the Early Years Foundation Stage (EYFS), teaching is planned through adult supported teaching and learning. Weekly opportunities to informally develop children's understanding of the world through child-initiated activities and routines are capitalised upon.

Key Stage 1 and 2

In Key Stage 1 (KS1) and 2 (KS2), teaching follows the National Curriculum. This involves weekly Science lessons and where appropriate, pre/ post teaching sessions / target groups.

Planning

At Dishforth Airfield, we use the ASE planning matrices and North Yorkshire Science ladders to support planning for progression within Science units of work. In addition to this, we have used FOCUS education documents to support the formation of our progression of knowledge and working scientifically skills documents which are used to support planning and progression across all year groups.

- Long term plans map out the units to be covered each term, during each key stage and class.
- Medium term plans identify learning objectives and outcomes for each unit, as well as indicating the working scientifically skills being taught.



- Short term plans prepared by each teacher, highlight the working scientifically skills and key concept objectives of the lesson, and identify resources and appropriate differentiation. They also indicate key questions and stem sentences.

Structure of a lesson

1. A starter activity to activate prior knowledge and encourage children to revisit key vocabulary, raise questions, and seek answers through discussion with their peers. We believe that this will support our children in transferring key knowledge into their long-term memory and will help them to know more, remember more and understand more.
2. Introduction of key concepts with opportunities for talk, exploration and identifying the Science Superhero member (working scientifically skill) for the lesson.
3. Task – independent / paired / group.
4. Practical investigations are used where appropriate where children develop their working scientifically skills alongside their understanding of key concepts.
5. Plenary with assessment for learning opportunities and the chance for children to reflect on their learning.

Throughout our Science lessons we use a metacognitive approach to teaching and learning which involves:

- Explicitly teach metacognitive strategies - activating prior knowledge, independent practice and structured reflection
- Modelling by the staff, verbalising their thinking and scaffolding tasks
- Setting an appropriate level of challenge
- Promoting and developing metacognitive talk in the classroom – language development and acquisition
- Explicitly teaching children how to organise and effectively manage their learning

Resources

- Each class has a Science working wall which will display key vocabulary, progression within the unit and examples of children's work throughout the unit of learning.
- Central resources are kept in the stock cupboard and in the hall.
- Different environments - classrooms, outdoor learning spaces and the hall.
- Apps available on school iPads to support children's learning across the Science curriculum.
- Snap Science assessment resources for all year groups which are available in each classroom.

Assessment

In Science, assessment is continuous. From the beginning of every lesson, teachers and teaching assistants will be assessing what their pupils are, or are not understanding and use this to scaffold each segment of the lesson. Target groups will be both planned for and 'live', meaning that misconceptions are dealt with immediately and high attaining pupils are challenged appropriately. Due to our highly mobile school community, we are very aware that prior knowledge for our pupils cannot be assumed. Therefore, we make good use of pre/ post teaching where appropriate to ensure that all children can achieve conceptual understanding.

Foundation Stage

- Staff's ongoing observational assessments ascertain a baseline when each child begins EYFS which then informs subsequent teaching and learning for each child.
- Future attainment is noted using photographs and observational notes. Progress is recorded in each child's Learning Journey and the next steps to be taken are identified. Progress is monitored termly.
- TAPS working scientifically lessons are used at a minimum of once per unit of work to assess children's working scientifically skills.

KS1 and KS2

- In weekly Science lesson, formative assessments are made. Practitioners observe, question and evaluate lesson outcomes to further determine progress made and the next steps in learning.
- Pre-assessments are made at the beginning of a unit of work and are used to inform starting points for teaching sequences. Pre-assessments take into account the prior learning children have had within repeated units of work.
- TAPS working scientifically lessons are used at a minimum of once per unit of work to assess the children's working scientifically skills.
- Children's attainment is tracked during each unit of work using individual year group trackers.
- Snap Science assessments are used as a tool to support tracking and children's attainment. They are also used to support target groups for any key concepts where misconceptions may have arisen.
- Progress is analysed termly by the subject leader and key areas of focus are identified and shared with staff.
- Statutory assessments are made at the end of each key stage.



Monitoring procedures

The Head teacher and Science subject leader play a central role in the monitoring and evaluation of the quality of teaching and learning of Science in the school.

The monitoring strategy:

1. Children's work and planning scrutinies are conducted.
2. Pupil voice is conducted termly within Science.
3. Lesson 'drop ins' and observations take place in all classes throughout the year.

The subject leader is responsible for monitoring attainment and progress, the outcomes of which are collated in the subject leadership folder and fed back to staff at an appropriate time.

Impact

As a result, learners will;

- Know more, remember more and understand more about Scientific concepts
- Recognise different types of Science enquiry and give examples of where they have used this type of enquiry in their learning
- Show confidence in asking questions about Scientific concepts
- Show confidence in planning and carrying out scientific enquiries to answer their questions
- Show confidence in selecting resources best appropriate for their Scientific enquiries
- Understand how Science is relevant to our world both now and in the future
- Show confidence in their ability to achieve in Science
- The majority will achieve the expected standard in Science