Here at Cambois Primary School we believe Science provides the foundations for understanding the world around us. Science has changed our lives and is vital to the world’s future prosperity. We teach Science as part of **STEM developments** in school which allows us to support children in the world around them as well as preparing them for their **next steps** in the future, whether this being secondary school or future employment. All pupils will be taught the essential aspects of knowledge through **concepts**, methods, processes and the uses of Science, through **dual objective planning** and the use of a **formative approach** to assessment**.** In our school we teach Science through **concepts** and as a result we build up **memorable knowledge and vocabulary**, supporting children with both their learning and long-term recall. Through teaching this way, we are allowing our pupils to develop a sense of excitement and curiosity about natural phenomena and the world around them. They will be encouraged to understand how key **knowledge** and **concepts** can be used to explain what is occurring, predict how things will behave and analyse causes.

**Aims**

The Science curriculum at Cambois aims to ensure that all pupils:

* Develop **scientific knowledge** through **conceptual understanding (use of models)**
* Develop understanding of the nature, processes and methods of Science through different types of **Science enquiries** and **working scientifically** which helps them to answer scientific questions about the world around them and supports them to work more independently.
* Are equipped with the scientific knowledge required to understand the uses and implications of Science, today and for the future which correlates with our wider whole school push to support children to have **greater aspirations** in the world of **STEM** careers.
* Build skills through the use of **dual objective planning**, supporting children to become more independent investigators.
* Build and develop **scientific vocabulary** through the use of **Science word walls** in classrooms focusing on **should use, must use** and **could use** vocabulary.

**Teaching and Learning**

**Scientific knowledge and conceptual understanding**

Whilst it is important that pupils make progress, it is also vitally important that they develop a secure understanding of **knowledge and concepts** to progress to the next steps. Insecure knowledge will not allow for genuine progression. At Cambois Primary School children will develop **scientific knowledge** through **conceptual understanding.** The concepts taught through the topics of the curriculum are also known as **Science models,** which weave their way throughout the entirety of the Science curriculum. These **Science models** allow children to become scientists, developing their creativity, solve problems and begin to make fundamental connections between knowledge and ideas. Furthermore, these **Science models** allow children’s independence to develop, giving them the opportunity to overcome misconceptions and transfer their knowledge. As a result, pupil responses will be deeper and more extended as facts and knowledge will make sense due to the **underlying concepts** and **Science models** they have been taught. Ultimately, security, mastery and depth relate to the use of **Science models.**

**Scientific enquiry and working scientifically**

Science has changed the world we live in and the way we live in it over time and will continue to do so in the future, therefore making it a key priority to teach to our pupils. The demand for high-quality **STEM** education from employers is increasing, yet the numbers to fill these jobs are not. It is our job as teachers and educators to ignite a spark and love of Science in children, supporting **greater aspirations** and providing them with a high-class education in Science which fully prepares them for their next steps in life. In order to do this **scientific inquiry** and **working scientifically** is absolutely vital.

Pupils will develop an understanding of Science through different types of **scientific enquiries** and **working scientifically,** helping them to make sense of the world around them through enquiry, investigation and experimentation. **Science models** will be used to assist children through their inquiry and experimentation to develop an understanding of the nature, process and methods of Science as well as answering scientific questions about the world around them and supporting them to work more independently. Lessons will be **hands-on, active** and include a wide range of strategies and enquiry types to allow pupils to examine **concepts** through different lenses. This ensures children are equipped with the **scientific knowledge** required to understand the uses and implications of Science, today and for the future which correlates with our wider whole school push to support children to have **greater aspirations** in the world of **STEM** careers.

**Vocabulary**

The National Curriculum reflects the importance of spoken language in pupils’ development across the whole curriculum. The quality and variety of language that pupils hear and speak are key factors in developing their **scientific vocabulary** and articulating **scientific concepts and models** clearly and precisely. At Cambois Primary School **vocabulary** will be developed alongside the teaching of **Science models**. The use of **Science word walls** in each classroom will highlight **should use, must use** and **could use** vocabulary which remain on show and become a key focal point of the classroom during science lessons. **Word walls** are designed to be interactive and will therefore be frequently changed and referred to throughout the duration of each Science lesson. When pupils are given the opportunity to interact with **scientific vocabulary,** they are more likely to remember, understand and use it, reiterating the importance of frequently changing and referring to **vocabulary**.

**Staffing**

The class teacher is responsible for timetabling to ensure the relevant sections of the Scheme of Work are covered during each half term.

Teachers will use a balance of:

* Teacher-prepared materials
* Published resources
* Practical tasks
* Visitors, e.g. parents, experts etc.
* Educational visits

The class teacher is also responsible for monitoring the progress of the children in their class.

**Assessment**

As a school we have adopted a **formative approach** to assessment in Science. This approach allows pupils to make mistakes, clarify their understanding and act on feedback to develop their skills and knowledge. Next steps for individual children and the whole class will be discussed in the classroom as part of this approach which is expected to happen in each class during every lesson. Furthermore, a pupil’s ability to use **Science models** can be picked up through **formative assessment** and provides a means for measuring how understanding is developing not only within but also between explicit topics. The **assessment board** used by teachers matches the National Curriculum for Science and follows a skills development approach and works in conjunction with a **model-based** approach to teaching. At the end of each term teachers will use their assessment findings to input data into target tracker, generating summative assessment for Science.

**Planning**

Dual objective planning is widely recognised as an effective way to teach outstanding Science and works alongside the skills and criteria highlighted on the **assessment board**. Dual objective planning consists of a **content objective** (sets the context for learning and ensures the National Curriculum coverage), in the style of a question, as well as a **skill objective** (sets the challenge for learning and reflects the skill focus of the lesson). Together these two objectives create a focus so that skills are taught through the content of the National Curriculum and allow progress to be clearly demonstrated. In addition, it ensures that mixed year groups can be easily taught within the same class by teaching all through the same topic (**content objective**) but changing the **skill objective** to make the challenge appropriate for each year group, which is vital for our school and pupils.

**Inclusion and Equal Opportunities**

In Science we aim to provide for all children so they achieve as highly as they can according to their individual abilities. Science plays a key part of children’s life within school and children are able to enjoy and progress. Those pupils who are under-achieving are identified and steps are taken to improve their attainment, whilst those more able are also identified and challenges for their learning are provided. All children are provided with equal access to the Science curriculum and teachers ensure the curriculum is appropriate for the needs of each child. Activities take place both within and outside the classroom and it is ensured all children actively participate in these tasks which are matched to their previous knowledge, understanding and experiences. All children have an equal opportunity to develop their understanding of science regardless of gender, ethnicity, or home background.

**Leadership and Management Roles**

The Science coordinator is responsible for:

* Understanding the requirements of the subject.
* Preparing policy documents, curriculum plans and schemes of work for the subject and updating documentation where necessary.
* Encourage, support, and guide the practice of teachers and support staff to provide effective learning opportunities for all pupils.
* To monitor and evaluate the effectiveness of teaching and learning in Science (learning walks, pupil voice, book looks and staff voice)
* To produce action plans for the School Development Plan.
* Help colleagues to develop their expertise.
* To attend relevant INSET training.
* Liaise with teachers of the subject.

**Foundation Stage**

Science is also taught as a discrete subject. As the reception class is part of the foundation stage, we relate the scientific aspect of the children’s work to the objectives set out in the Early Learning Goals included in ‘Knowledge and Understanding of the World’. This encourages children to explore, problem solve, observe, predict, think, make decisions and talk about the world around them. Foundation Stage recorded a lot of practical lessons on Tapestry.

**Health and Safety**

The school’s Health and Safety Policy outlines the safe codes of practice for our school and provides the necessary guidance on the response and the reporting of all incidents. Children are encouraged to assess hazards and discuss the appropriate precautions. Children are taught the appropriate safe practice when using equipment. This will include:   
∙ How to use equipment correctly and in accordance with health and safety guidelines   
∙ To behave in a considerate and responsible manner.  
 A Risk Assessment will be completed for any educational visit or memorable experience.

**ICT and E-Safety**

Children use ICT in Science lessons where appropriate. The children have access to the internet to research information about their Science topics. Each classroom is fitted with an interactive whiteboard enabling the teacher to use video clips and demonstration programmes to enrich lessons. At Cambois we use Tapestry and Seesaw to record observations, recordings, and experiments. We share this secure website with parents so they can view and comment on what their child has been doing throughout the school year. When ICT is used in Science lessons, before every lesson the class teacher will remind children about how to use the internet safely and refer to the poster on display. They will monitor and report e-safety incidents in line with the AUP (Acceptable Use Policy).

Signed: Ashlyn Jackson

Implemented: September 2022

Reviewed: July 2023

Review Date: July 2024