BLACK HORSE HILL
INFANT SCHOOL

SCIENCE
POLICY

4th June 2024

Approved by Committee _____

26th June 2024

Approved by Full Governing Body _____

C Brierley

Signed _____**(Chair)**

J Morris

Signed _____**(Headteacher)**

Contents:

1. **Vision, Aims and Values**

Learning for Life

School Vision

Together, our schools will: -

Nurture and empower our children to become creative, compassionate and confident citizens, in a diverse and ever-changing world.

School Aims

Our school community will: -

- **Have high expectations for all**
- **Inspire a passion for learning**
- **Provide an enjoyable, ambitious, coherent curriculum**
- **Develop positive relationships through collaboration**
- **Create a safe and happy environment**

School Values

All our children, staff and parents will share the same core principles of: -

- **Respect**
- **Honesty**
- **Kindness**
- **Excellence**
- **Resilience**
- **Friendship**
- **Courtesy**

2. Legal framework

This policy has due regard to statutory legislation and guidance including, but not limited to, the following:

- DfE (2013) 'Science programmes of study: key stages 1 and 2'
- DfE (2014) 'Statutory framework for the early years foundation stage'
- The Control of Substances Hazardous to Health Regulations (COSHH) 2002
- The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) 2013

This policy will be used in conjunction with the following school policies and procedures:

- Health and Safety Policy
- Primary Science Health and Safety Policy
- Accident Reporting Procedure Policy
- Primary Assessment Policy

3. Intent

"Science knows no country, because knowledge belongs to humanity, and is the torch which illuminates the world."

Louis Pasteur

Science teaching at Black Horse Hill Infant School aims to give all children a strong understanding of the world around them and develops their curiosity to find out how and why things happen in the way they do. Children will acquire specific skills and knowledge to help them to think scientifically using enquiry and investigation encouraging creative thought. Children learn to ask scientific questions and discuss issues concerning science, which affects their lives, their community and the world as a whole.

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. In addition the children are immersed in scientific vocabulary, which aids children's knowledge and equips them with the ability to explain scientific concepts.

Please find attached below the Science Long Term Overview for the whole school. Included in this document are the scientific knowledge and conceptual understanding statutory requirements for EYFS, Year One and Two. During each lesson pupils develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them. Additionally pupils are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

Science Final LTO progression map - dc

4. Implementation

EYFS

During the foundation stage, in accordance with the 'Statutory framework for the early years foundation stage', focus will be put on the seven areas of learning, with the scientific aspect of pupils' work relating to the objectives set out within the framework. For Science the area of learning will be Understanding of the World.

KS1

The national curriculum is followed and provides a full breakdown of the statutory content to be taught within each unit.

During **years 1 and 2**, pupils are taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- 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.

In Year One pupils are taught to:

- identify and name a variety of common wild and garden plants, including deciduous and evergreen trees
- identify and describe the basic structure of a variety of common flowering plants, including trees
- identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals
- identify and name a variety of common animals that are carnivores, herbivores and omnivores
- describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets)
- identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense
- distinguish between an object and the material from which it is made
- identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock

- describe the simple physical properties of a variety of everyday materials
- compare and group together a variety of everyday materials on the basis of their simple physical properties
- observe changes across the 4 seasons
- observe and describe weather associated with the seasons and how day length varies

In Year Two pupils are taught to:

- explore and compare the differences between things that are living, dead, and things that have never been alive
- identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other
- identify and name a variety of plants and animals in their habitats, including microhabitats
- describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food
- observe and describe how seeds and bulbs grow into mature plants
- find out and describe how plants need water, light and a suitable temperature to grow and stay healthy
- notice that animals, including humans, have offspring which grow into adults
- find out about and describe the basic needs of animals, including humans, for survival (water, food and air)
- describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene
- identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses
- find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching

Cross-curricular links are identified on the topic planning. Science units are sometimes taught as part of a topic where links can be made between subjects.

Teaching and learning

Pupils will be taught to describe associated processes and key characteristics in common language, as well as understand and use technical terminology and specialist vocabulary.

Lessons will allow for a wide range of scientific enquiry, including the following:

- Questioning, predicting and interpreting
- Pattern seeking
- Practical experiences
- Collaborative work

- Carrying out investigations
- Carrying out time-controlled observations
- Classifying and grouping
- Undertaking comparative and fair testing
- Researching using secondary sources

Opportunities for outdoor learning will be provided wherever possible.

Each year group will have the opportunity to undertake an external educational visit, which is science based, at least once a year.

A science scheme of work is located in every classroom and available to access on the shared drive; this can be used to promote progression throughout the school.

At Black Horse Hill, we use the online scheme 'Curriculum Maestro" as a foundation for planning. Teachers then adapt this to meet the needs of their pupils.

As mentioned previously, Science units are sometimes taught as part of a topic where links can be made between subjects.

Cross-curricular links

Wherever possible, the science curriculum will provide opportunities to establish links with other curriculum areas.

English

- Pupils are encouraged to use their speaking and listening skills to describe what is happening.
- Pupils' writing skills are developed through recording their planning, what they observe and what they found out.
- Science based texts are sometimes used in English lessons and in guided reading sessions.

Maths

- Science will involve a degree of numeracy at all levels.
- Pupils use their knowledge and understanding of measurement and data handling.
- Where appropriate, pupils record their findings using charts, tables and graphs.

ICT

- Pupils will use ICT to locate and research information.
- ICT will be used to record findings, using text, data and tables.
- Pupils are encouraged to use calculators and other electronic devices, gaining confidence throughout their school experience.

PSHE

- Health education is taught as part of the science unit about ourselves, which covers:
  - Health and growing
  - Teeth and eating
  - Moving and growing
  - Keeping healthy
  - Life cycles

History

- Scientific discoveries and the contribution of individuals to science will be studied.

Spiritual development

- Pupils' development will be focussed on the vastness of science and the natural world, encouraging a sense of awe.
- Pupils are encouraged to think about the effect of scientific discoveries on the modern world.
- Current scientific developments and issues will be discussed in the classroom, where appropriate.

Planning

All relevant staff members are briefed on the school's planning procedures as part of staff training.

Throughout Black Horse Hill, science is taught as a discrete lesson and as part of cross-curricular themes when appropriate.

Teachers will use the key learning content in the DfE's 'Science programmes of study: key stages 1 and 2' and the national curriculum as a starting point for their planning.

Lesson plans will demonstrate the balance of visual, auditory and kinaesthetic elements used in teaching, ensuring that all pupils with different learning styles can access the learning experience.

Long-term planning will be used to outline the units to be taught within each year group.

Medium-term planning will be used to outline the vocabulary and skills that will be taught in each unit of work, as well as highlighting the opportunities for assessment.

Medium-term plans will identify learning objectives, main learning activities and differentiation.

Medium-term plans will be shared with the subject leader to ensure there is progression between years.

Short-term planning will be used flexibly to reflect the objective of the lesson, the success criteria and the aim of the next lesson.

Short-term planning is the responsibility of the teacher. This is achieved by building on their medium-term planning, taking into account pupils' needs and identifying the method in which topics could be taught.

Short-term plans are solely for the benefit of the classroom teacher and do not need to be shared with the subject leader.

All lessons will have clear learning objectives, which are shared and reviewed with pupils.

Knowledge organisers for scientific content are used where science is the driver subject. A published knowledge organiser gets sent home at the start of each new topic and a bespoke one is completed in school and is always on the working wall.

5. Impact

Monitoring and review

The subject leader, in collaboration with the head teacher, will review this policy on an annual basis.

The subject leader will monitor teaching and learning in science at Black Horse Hill Infant**,** ensuring that the content of the national curriculum is covered.

Any changes made to this policy will be communicated to all teaching staff.

Assessment and reporting

Pupils will be assessed and their progression recorded in line with the school's Assessment Policy.

Pupils will be assessed continuously throughout the year, as well as undertaking a summative assessment at the end of each academic year.

Throughout the year, teachers will plan on-going creative assessment opportunities in order to gauge whether pupils have achieved the key learning objectives.

Assessment in science is based upon scientific knowledge and understanding, rather than achievement in English or maths.

Assessment will be undertaken in various forms, including the following:

- Talking to pupils and asking questions
- Discussing pupils' work with them
- Marking work against the learning objective
- Specific assignments for individual pupils
- Observing practical tasks and activities
- Pupils' self-evaluation of their work
- Classroom quizzes

Formative assessment, which is carried out informally throughout the year, enables teachers to identify pupils' understanding of subjects and informs their immediate lesson planning.

In terms of summative assessments, the results of end of year assessments will be passed to relevant members of staff, such as the pupil's future teacher.

Parents will be provided with a written report about their child's progress during the **Summer** term every year. These will include information on the pupil's attitude towards science, progress in understanding scientific methods, ability to investigate, and the knowledge levels they have achieved.

Verbal reports will be provided at parent-teacher interviews during the **Autumn** and **Spring** terms.

Pupils with special educational needs and disabilities (SEND) will be monitored by the class teacher and the special educational needs coordinator.

6. Equal opportunities/Diversity

All pupils will have equal access to the entire science curriculum, including practical experiments.

Gender, learning ability, physical ability, ethnicity, linguistic ability and/or cultural circumstances will not impede pupils from accessing all science lessons.

Where it is inappropriate for a pupil to participate in a lesson because of reasons related to any of the factors outlined above, the lessons will be adapted to meet the pupil's needs and alternative arrangements involving extra support will be provided where necessary.

All efforts will be made to ensure that cultural and gender differences will be positively reflected in all lessons and teaching materials used.

Black Horse Hill Infant School aims to provide more academically able pupils with the opportunity to extend their scientific thinking through extension activities such as problem solving, investigative work and research of a scientific nature.

7. Roles and responsibilities

The **Science leader** is responsible for:

- Preparing policy documents, curriculum plans and schemes of work for the subject.
- Reviewing changes to the national curriculum and advising on their implementation.
- Monitoring the learning and teaching of science, providing support for staff where necessary.
- Encouraging staff to provide effective learning opportunities for pupils.
- Helping to develop colleagues' expertise in the subject.
- Organising the deployment of resources and carrying out an annual audit of all science resources.
- Liaising with teachers across all phases.
- Communicating developments in the subject to all teaching staff.
- Leading staff meetings and providing staff members with the appropriate training.
- Organising, providing and monitoring CPD opportunities in the subject.
- Ensuring common standards are met for recording and assessment.
- Advising on the contribution of science to other curriculum areas, including cross-curricular and extra-curricular activities.
- Collating assessment data and setting new priorities for development of science in subsequent years.

The **classroom teacher** is responsible for:

- Acting in accordance with Black Horse Hill Infant School's Science Policy, ensuring that lessons are taught in line with the school's Health and Safety Policy at all times.
- Liaising with the science coordinator about key topics, resources and supporting individual pupils.
- Ensuring that all of the relevant statutory content is covered within the school year.
- Monitoring the progress of pupils in their class and reporting this on an annual basis.
- Reporting any concerns regarding the teaching of the subject to the subject leader or a member of the senior leadership team (SLT).
- Undertaking any training that is necessary in order to effectively teach the subject.

Equipment and resources

Science resources for each unit are stored in appropriate year groups.

The subject leader is responsible for ensuring that all resources and equipment are sufficiently maintained.

Equipment will be checked prior to each use and any damages or defects must be reported to the subject leader immediately.

The subject leader is responsible for maintaining an inventory of resources.

Staff members must inform the subject leader of any changes regarding science resources, such as broken items or when new resources are required.
Any equipment or resources which are a cause of concern will be removed from premises immediately.

The subject leader will carry out an annual audit of the science resources, reordering any consumables when necessary.

Class teachers can discuss the need for new resources with the subject leader.
The subject leader is responsible for negotiating requests from staff members and ensuring resources are bought within the amount allocated in the annual budget.

School equipment and resources will be loaned to individuals in line with the school's Loaning School Equipment Policy.

Health and safety

Staff members will act in accordance with the school's Health and Safety Policy at all times.

Accidents and near-misses will be reported following the procedure outlined in the school's Accident Reporting Procedure Policy.

A risk assessment will be carried out by teachers before conducting an experiment or undertaking practical activities.

All staff members will be shown how to correctly use equipment as part of their induction training.

All pupils will be shown how to correctly use equipment and will be monitored by staff members whilst using equipment.

All pupils will be made aware of how they are expected to behave, ensuring that they show respect to other people and the environment.

Pupils are made aware of the personal safety protocols and equipment needed when using different equipment or carrying out different tasks.

Staff members will be made aware of the COSHH and RIDDOR regulations as part of their induction training and will act in accordance with these whilst undertaking activities.

Any ‘new’ experiments or activities which a teacher has not used in the classroom before will be trialled prior to being performed with pupils.

At the beginning of any experiment, the teacher will outline the purpose of the experiment to the class, and all hazards and safety precautions will be thoroughly outlined.

Mr C Young
Science Subject Leader
May 2024