SCIENCE POLICY

Date Issued: January 2016 **Review Date: September 2017**

"If we did all the things we are capable of doing, we would literally astonish ourselves."
Thomas Edison, Inventor and Scientist

INTRODUCTION

This policy outlines the teaching and learning of Science within the school from Early Years, through to the end of Key Stage 2. The policy is based on: Science in the National Curriculum 2014 and the Collins Snap Science scheme of work. It promotes understanding across:

a) Scientific knowledge and understanding of biology, chemistry and physics
b) Use and application of scientific skills for discovery

AIMS

The aims for Science in our school will ensure that pupils 'work scientifically' and will be able:

- To ask questions about the world they live in, making predictions
- To be able to plan and implement a fair investigation
- To be able to observe changes, using their five senses
- To be able to record and measure information gathered
- To interpret and communicate their findings
- To have a working knowledge of science so that they can apply it to their everyday lives
- To use Computing, English and Maths skills to aid their Scientific learning
- To stay safe and healthy while exploring and learning

In order to achieve these aims we will:

- Provide a stimulating environment to promote effective learning in Science
- Ensure continuity and progression in Science by liaising with colleagues on areas covered
- Give children lots of opportunities to develop and apply investigative skills
- Provide necessary resources for the children to be taught effectively
- Provide a safe environment in which to explore Science

TEACHING AND LEARNING

We use a variety of teaching and learning styles in Science lessons such as research, investigation, exploration, group work and independent work. We share the learning intention, which is skills based by stating it clearly at the beginning of each lesson. Our main aim is to develop children's scientific skills, knowledge and understanding through challenging, motivating activities that extend the learning of all pupils. Each classroom has a Science learning area which will display children's learning and promote further discussion and investigation.

SCIENCE WEEK

Every year our school celebrates Science Week, where all classes take part in a range of scientific activities, every day. Pupils will get experts in science areas to lead interactive sessions as well as taking part in hands on scientific learning in their classes as well. The Science Coordinator will arrange and oversee the outside led activities, and support teachers in their planning for this week.

PLANNING

Early Years Foundation Stage (EYFS)

In the Early Years we teach Science through the knowledge and understanding of the world, from the Development Matters Foundation Stage curriculum. The emphasis is on practical teaching sessions, which involve continuous provision in the classroom, for children to do further, independent exploration.

Key Stage 1 and Key Stage 2

In the Key Stage 1 and 2, we teach the National Curriculum, with support from the Collin's Snap Science, scheme of work. The long term (annual) Curriculum Map, identifies the topics and progression to be taught in each year group. The medium term plans identify the Science objectives for each block/half term. The weekly plans will include the Science skills which are focused on and will explain the lesson in which this will be done. (see Appendix 1) Science is to be taught as a 'block' lesson (2 consecutive hours) weekly, so that there is ample time to carry out complete investigations. Lessons will focus on one particular scientific skill, as to embed a deeper level of learning.

The Science planning is monitored by the Science subject leader half-termly to ensure curriculum coverage and an emphasis on practical exploration and investigation.

CROSS-CURRICULAR SCIENCE

In order for learning to be effective in Science, it is important that pupils develop their speaking and listening skills and ability to work both independently and collaboratively. Clear links should also be made to other curriculum subjects, for example, when measuring temperature, pupils should be able to transfer skills that have been acquired during maths lessons.

In addition, Science provides the opportunity for pupils to develop the following cross-curricular skills:

- Communication in a variety of contexts through promoting the skills of reading, writing, speaking and listening (research skills)
- Application of number through the use of weights and measures, handling data, estimating and predicting
- Use of computing to measure, record, present and interpret data where appropriate, use of the internet, digital recording devices and programmes.

DIFFERENTIATION

We differentiate lessons and outcomes by:

- Use of communication and language
- Setting up tasks that have a variety of levels of accessibility
- Questioning
- Varying the level of adult support given to groups

Teachers use their professional judgement, depending on the outcome of the science lesson, regarding whether pupils will work in ability groups or in mixed ability groups during lessons. For example, during a practical investigation it may be necessary for pupils to work in ability groups to set appropriate challenge, thus promoting those that are gifted and talented and/or supporting those that require additional scaffolding or support when working scientifically.

RECORDING AND ASSESSMENT

Early Years Foundation Stage (EYFS)
In EYFS learning and progress will be recorded in each pupil's profile, which is updated on a weekly basis and illustrates a story of each child's progress in learning areas. Progress is analysed each term by the EYFS Leader and Deputy Head Teacher

Key Stage 1 and 2
In key stages 1 and 2, evidence will be recorded in Science exercise books. Each child will have at least two pieces of evidences recorded in books for each of the separate science topics for their year group.

Each class will also have a Science Portfolio in which different groups of children will add photographs, reflect upon and extend their learning in this shared book. The portfolio will be available during directed times and free time, when deemed appropriate by the classroom teacher, for all children to have the opportunity to add and record more of their scientific ideas. The portfolio will have a minimum of two entries for each of the science topics in the year group. The portfolio will move up with each class as they enter a new year group.

Class teachers will also record the children's attainment at the end of each Science topic as well as recording their progress of 'working scientifically' skills for each phase (KS1, lower KS2, upper KS2) at the end of each term.

EFFECTIVE FEEDBACK AND MARKING POLICY

Science marking will be in line with the schools marking policy. Pupils will also receive verbal feedback where appropriate.

HEALTH AND SAFETY

It is the responsibility of the staff to adhere to all safety measures in the school Health and Safety Policy.

The school has a teaching and learning risk assessment which focuses on health and safety issues surrounding the teaching and learning of science. Pupils are made aware of the potential dangers when handling equipment and should be encouraged to work safely from an early age.

Prior to practical science lessons teachers must assess the risk to pupils and ensure that all adults working within the classroom are aware of possible hazards. At all levels co-operation and considerate safe codes of conduct are praised and encouraged.

SEND

Children are given access to science irrespective of ability, race and gender (see SEN Policy). Teachers are responsible for the learning of all children in the class. This may involve formulating individual learning programmes for any children with particular needs. Activities in science have characteristics which help pupils to achieve success as:

- They emphasise first-hand experience;
- Knowledge and skills can be developed in small steps through practical activities;
- Science investigations can capture the imagination and so encourage participation and enthusiasm

Provision for pupils with Special Educational Needs is planned in line with the Code of Practice for SEN. Tasks are differentiated and matched according to the abilities of the pupils. Additional challenge for gifted and talented children is provided by the class teacher. We aim to give very able pupils the opportunity to extend their scientific thinking through extension activities such as problem solving, investigative work and research of a scientific nature.

MONITORING AND EVALUATION

The Science Subject Leader, in conjunction with the HT and SLT, is responsible for the monitoring and evaluation of science standards and provision within the school. Governors are supplied with the key findings and relevant documentation and the governors responsible for the curriculum make visits to discuss and observe teaching and learning.

Monitoring and evaluation activities include:

• Planning, book and assessment scrutiny
• Lesson / team teaching observations
• Sampling children's work and discussion
• Analysis of standards achieved

Success of our science teaching will be judged by:

- The motivation and interest displayed by our pupils (pupil voice)
- The development, over time, of pupils' understanding of scientific concepts and processes
- Pupil's ability to apply their understanding in a variety of new situations
- Pupils outcome of work in their science exercise books and through displays

REVIEW

This policy covers our school's approach to teaching Science.
It was produced by the Science co-ordinator, through consultation with professional colleagues and the school governors. The policy will be available to teachers, governors and parents on request. The policy will also be made available on the school website.

Review and implementation
This policy is to be reviewed in 2017 and is the responsibility of the Science Co-ordinator.

January 2016 – Mrs J. Seaman

This document was approved and adopted by the governing body

Name of Chair of Governors: George Lopez

Appendix 1

Weekly Plan – Science

Year Class:			**Term**	**Week Commencing:**	**Topic:**	
Lesson and Focus	**Subject specific skills**	**Lesson Objective and Success Criteria**	**Main Teaching Activity Differentiation**		**Plenary**	**Resources & VCOP**
Knowledge to be taught.	Skills link using SC1 focus	**Learning Objective:** Skill focus using Blooms Taxonomy. **Success Criteria** Limited to three steps in chronological order to meet the learning objective.	**Outcome:** What is expected to be in books **Starter:** to get children enthusiastic for learning/ review of learning **Shared activity:** Vocab to be shared Key question: Feedback Key question Model activity **Role of additional adult:** Include who the adult will be working with, key questions they can ask, the task they will be doing. **Main/Independent Activity:** To be differentiated H.A and G&T (Level) M.A (Level) L.A (Level) SEN (Level) **Extension activity:** To extend or challenge learners		Deal with misconceptions /prepare for next step in learning.	**Key Vocabulary** Limited to a few words specific to the lesson. These will need to be contextualized and defined. **Resources** Required for the lesson including websites

INCLUSION CODES	**CT** Class teacher	**CR** Culturally relevant materials	**DDT** Direct Differentiated tasks	**IA** Interactive activity	**LA** Learning Assistant	**OQ** Open Questioning	**S** Scaffolding

	CA Collaborative learning	**DT** Direct Talk Activities	**Ex T** Extra time	**MAG** Mixed Ability Grouping	**CD** Class Discussion	**PW** Paired Work	**VS** Visual Support