Regent Farm First School Science Policy

Introduction

At Regent Farm First School we recognise that pupils are living in a rapidly developing world. Through science pupils understand how major scientific ideas contribute to technical change – impacting on industry, business and medicine, improving the quality of life. Science is about children developing a sense of enquiry and extending their knowledge and understanding of the world around them. It includes knowledge about living things, materials, energy and the solar system. Science is concerned with investigation and children using their investigations and knowledge to understand how the world is constructed.

Throughout their time at Regent Farm, the children will be developing scientific skills that will lead to them working as scientists, planning and undertaking scientific investigations. Through critical thinking and careful evaluation and by linking practical experience with ideas, children will become engaged at many levels. This in turn provides the basis for critical and creative thought throughout the whole of the curriculum.

The school's aims are to:

- To meet the requirements of the National Curriculum programmes of study at Key Stage 1 and 2.
- In Early Years to continue children's natural process of exploration and acquisition of knowledge about the world in line with the Early Learning Goals.
- To provide a broad, balanced and challenging curriculum for all pupils.
- To ensure Science is taught weekly for between 1 – 2 hours either discretely, or where appropriate, as part of the wider curriculum.
- To enable the children to develop a knowledge of appropriate scientific facts and to develop basic concepts.
- To encourage curiosity in children about their environment through a practical approach.
- To organise practical activities and investigations so that children are able to communicate their work to others in a variety of ways.
- To enable children to develop an enquiring mind.
- To enable teachers and children to approach concepts together as 'co-explorers'.
- To have the desire, knowledge and ability to find out about the world around them using all their senses.
- To encourage open mindedness so children interpret their findings critically and do not always expect the 'right answer'. Science teaching will be made relevant by building upon pupils' own experience and using contexts suitable for their age.
- To ensure teacher and child assessments are used in a way that supports and encourages children to extend and challenge their ideas and findings.

- To help children to develop a positive attitude towards science.
- Science is taught both discretely and as part of the wider curriculum. Cross-curricular links are made where appropriate in order that children can experience science within a variety of different contexts.

EARLY YEARS

Working scientifically

Enquiry skills are empowering: children become confident, independent learners (de Boo 1999).

Children are naturally inquisitive and through repetitive play begin to make sense of the world around them, for example, a baby repeatedly banging a rattle against its gums learns that it is hard. They learn that by shaking it, it makes a noise, and so on.

In Early Years, within a safe and stimulating environment, children's curiosity and exploration is encouraged, and children are provided with lots of time to explore as well as opportunities to ask questions, and engage in science-based activities such as comparing and measuring, investigating and testing, drawing conclusions and making generalisations; they are taught how to test their generalisations for possible flaws and they are equipped for life-long learning. Children are given access to equipment and activities that may not be available at home.

Knowledge

It is essential that young children's emerging skills are reaffirmed, reinforced and developed. At Regent Farm, we want our children to acquire essential scientific knowledge: we want them to know that plants grow from seeds, that gravity pulls things down to Earth, that the Moon reflects the light from the Sun.

Recording

Children's achievements are recorded in their electronic Learning Journeys, evidence books and on display boards.

KEY STAGES 1 AND 2

Working scientifically

In Key Stage 1 the children will learn to use the following practical scientific methods, processes and skills:

- asking simple questions and recognising that these can be answered in different ways
- observing closely, using simple equipment
- performing simple tests
- identifying and classifying
- using their observations and ideas to suggest answers to questions
- gathering and recording data to help in answering questions

In Key Stage 2 the children will learn to use the following practical scientific methods, processes and skills:

- asking relevant questions
- setting up simple practical enquiries, comparative and fair tests

- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.

Vocabulary

In Key Stage 1 children should read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge. In Key Stage 2 children should read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge.

Curriculum Coverage for Key Stage 1 and 2:

Year 1	**Year 2**	**Year 3**	**Year 4**
Working scientifically	Working scientifically	Working scientifically	Working scientifically
	Living things and their habitats		Living things and their habitats
Plants	Plants	Plants	Plants
Animals, including humans	Animals, including humans	Animals, including humans	Animals, including humans
		Rocks	
Everyday materials	Uses of everyday materials		States of matter
		Light	
			Sound

		Forces and magnets	
Seasonal changes			
		Electricity	

Recording

Pupils will record their science work in a separate science book which should evidence their work and demonstrate coverage of the Science curriculum. This could include examples of:

- Written work
- Diagrams/drawings
- Photo evidence
- Group work

Planning

Teachers of both classes in each year group are expected to plan collaboratively in order to achieve consistency and to share ideas thus promoting best practice. Science should be planned to take place in weekly lessons of between 1 – 2 hours. Planning makes use of ideas from leaders in science education such as STEM Learning and Nicky Waller (published author). A minority of children will have particular teaching and learning requirements which go beyond the provision for that age range and if not addressed, could create barriers to learning. This could include those with visual impairment, SEN or those who have EAL. Teachers must take account of these requirements and plan, where necessary, to support individuals or groups of pupils to enable them to participate effectively in the curriculum and assessment activities. During any teaching activities, teachers should bear in mind that special arrangements could be made available to support individual pupils. This is in accordance with the school inclusion policy. These children should be identified and discussed at pupil progress meetings to ensure that appropriate provisions and/or interventions are affected.

Resources and access

Our school acknowledges the need to continually maintain, update and invest in its resources in order to effectively deliver the objectives of the National Curriculum and support the use of IT, computer science and digital literacy across the school. Teachers are required to inform the computing subject leader of any faults as soon as they are noticed. There is a well-stocked science cupboard containing resources for all areas of the Curriculum.

The role of the Subject Leader

There is a computing subject leader who is responsible for the implementation of computing policy across the school. Their role is to:

- offer help and support to all members of staff (including teaching assistants) in their teaching, planning and assessment of science
- provide colleagues opportunities to observe good practice in the teaching of science

- maintain resources and advise staff on the use of specialist scientific equipment
- monitor classroom teaching or planning following the school's monitoring programme
- monitor the children's progression in science, looking at examples of work of different abilities
- manage the science budget
- keep up-to-date with relevant scientific developments and communicate information and developments with colleagues
- lead staff training on new initiatives
- update The Regent Farm First School Science Policy
- attend appropriate in-service training
- have enthusiasm for science and encourage staff to share this enthusiasm
- keep parents and governors informed on the implementation of science in the school
- liaise with all members of staff on how to reach and improve on agreed targets
- help staff to use assessment to inform future planning
- provide equality of opportunity using a range of teaching approaches and techniques
- use appropriate assessment techniques and approaches
- set suitable targets for learning as outlined in the inclusion policy
- maintain up to date assessment records

Staff Training

The science subject leader will assess and address staff training needs as part of the annual development plan process or in response to individual needs and requests throughout the year. Individual teachers should attempt to continually develop their own skills and knowledge, identify their own needs and notify the subject leader.

Cross Curricular Links

Where appropriate, links to other areas of the curriculum are made, in order to deepen children's understanding of science across a range of different contexts. However, this should only be done in such a way as not to dilute the underlying scientific objectives and content.

Parental Involvement

Parents are encouraged to reinforce aspects of the science curriculum through appropriate Home Learning activities set by the class teacher; half termly curriculum overviews are sent to parents in order that they can further explore curriculum coverage to support their own knowledge of the National Curriculum and in turn support their children with science for the coming half term. Science Week takes place annually and parents are informed of this in order that they can get involved in helping their children to celebrate science in fun and engaging ways. In addition to this, other important science initiatives the school becomes involved with, for example, STEM-based activities and events, either individually or as part of our wider Trust, are communicated to parents in order that they are given the opportunity to get involved in their children's learning.

Assessment

Assessment is both formative and summative; formative assessment in science is on-going and employs approaches such as observations, formative evaluation, verbal and written feedback and assessment for learning in order to modify teaching and learning activities to improve attainment. Summative assessment is used in order to determine pupils' overall knowledge, skills, understanding and application, for example, through quizzes as well as more formal tests.

Marking

Feedback to children is given in line with the school marking policy. Correct spelling and use of scientific vocabulary should be reinforced through written feedback.

Additional policies

Health and Safety

Monitoring and evaluation

The subject leader is responsible for monitoring the standard of the children's work and the quality of teaching in line with the schools monitoring cycle. This is through planning, lesson observations, pupil discussion, evaluating pupil work and scrutiny of data. We allocate time for the vital task of reviewing samples of children's work and for visiting classes to observe teaching in the subject.

Policy created by R Matthews (Science Lead)

27.04.2020