

Ringway Primary School

Science Policy

The Future The Future starts here

Our aim is to provide the foundations for a positive future for our pupils.

A future where pupils learn to stay safe, to understand the importance of a healthy lifestyle and to enjoy all they do.

A future where they are money smart and make a positive and respectful contribution to their culturally diverse community - at a local, national & global level.

A future where they aspire to be the best they can be & achieve their full potential

Policy adopted since: January 2018

Created by: G Carlin

Signed C of GOV	
Signed Headteacher	

Date to be reviewed:	
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Science Policy 2018

This policy is in line with the National Curriculum 2014 guidelines for the teaching and learning of science.

Rationale

At Ringway Primary School we teach science across all year groups. We believe that a quality science education provides the foundations for understanding the world through the disciplines of biology, chemistry and physics. Science continues to change our lives and is vital in the world's future prosperity. It is therefore fundamental that all pupils should be taught essential aspects of knowledge, methods and processes of science. Our science teaching ensures that whilst developing key foundational knowledge and concepts, children are encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave and analyse causes. Our teaching should therefore foster the appreciation that science affects our future on a personal, national and global level.

Aims

Through the principles of good science teaching, we aim to develop our children in the following ways:

1. Children's curiosity is encouraged and valued; they are excited and enthusiastic when anticipating their science lessons;
2. Science is practical and hands on whereby children enjoy learning through exploration and questioning; they have the opportunity to use good-quality resources;
3. Enrichment events /school visits/ workshops are accessible to all throughout their time at Ringway;
4. Science is taught throughout the school and children's progression is evident across year groups;
5. Children accurately use scientific vocabulary in context;
6. Teachers use different assessment strategies during science lessons in order to aid progression;
7. All children actively engage in scientific enquiry, using a variety of strategies independently and co-operatively.

Teaching and learning

At Ringway we use a variety of teaching and learning styles in science. Our principle aim is to develop children's knowledge, skills and understanding. Sometimes this is done through whole-class teaching while at others we engage the children in enquiry-based research activities. Where appropriate, this should begin with a stimulus to encourage children to ask as well as answer their own scientific questions to explore. Children are involved in active discussions where they are encouraged to become critical thinkers and are able to present reports/findings to their peers. They should also engage in a wide variety of problem-solving activities which also seek to challenge their ability to provide reasoning for cause and effect. Where appropriate, work should be focussed around real life contexts to aid conceptual understanding - this should be identified in the WALT.

We recognise that in all classes children have a wide range of scientific abilities and that it is important we provide suitable learning opportunities for all by matching the level of challenge to their individual needs. We achieve this in a variety of ways:

1. Providing tasks at differing complexity such as bronze, silver and gold tasks which children are familiar to in other curriculum areas;
2. Allowing children ownership (where appropriate) to choose their own level of challenge to motivate and remove any ceilings to learning;
3. Challenging more able children through reasoning questions to create a greater depth of knowledge;
4. Using teaching assistants to support the needs of individuals or groups;
5. Provide opportunities for peer teaching to take place through group work and collaboration - mixed ability partners and seating plan.
6. By making links with other curriculum subjects.

Cross-curricular links

Through our teaching of science we aim to ensure learning is transferable in the following areas:

1. Children use ICT where appropriate to enhance their learning.
2. Children are able to explain and report on scientific knowledge and findings across the school as part of 'Big Writing'

3. They should apply their mathematical knowledge to their understanding of Science, including collecting, presenting and analysing data.
4. All other curriculum links are exploited to the full when and if appropriate. For example, creating observational drawings in Art.

Working Scientifically

'Working scientifically' within the curriculum encompasses the understanding of the nature, processes and methods of science within each year group. This should not be taught as a separate strand but rather incorporated within and across all programmes of study when appropriate.

There are five areas of scientific enquiry which include:

1. Making observations over time
2. Carrying out research
3. Pattern seeking
4. Identifying, classifying and grouping
5. Fair and comparative testing.

Where possible, these lessons should start with children's own questions - making the enquiry child-led - helping to generate curiosity. Pupils' should discuss how to investigate these questions and seek to answer them through observation, research or collecting data which they can then analyse.

The areas for 'working scientifically' which are required to be taught within each year group have been taken directly from the National Curriculum and are incorporated into the Long-term plan (2017).

Early Years Foundation Stage

In the Early Years Foundation Stage, Science is included as aspects of: Technology; People and Communities; The World. The children in Nursery and Reception classes are provided with a broad range of opportunities and experiences through which they may work towards the Early Learning Goals:

- To investigate objects and materials by using all of their senses as appropriate;
- To find out about and identify some features of living things objects and events they observe;

- To look closely at similarities, differences, patterns and change and to ask questions about why things happen and how things work.

'Scientific language'

Children will be introduced to precise scientific vocabulary during science lessons. Children should be encouraged to respond using the language they have learnt and teachers should act as role models in this learning process. Key vocabulary should also be placed upon the classroom science display / working wall. This integrated approach to the understanding of words, not only surrounds children with the 'correct' terms and language but acts as contextualisation as it is used in a real-life context. In addition, children will also be asked to explain answers in their own words in order to show deeper understanding and reasoning skills.

Promoting Science

- School visits / workshops for science are organised where possible in line with the current unit of work to enhance and extend learning;
- Each year the school will take part in the celebration of National Science Week;
- Science displays in classrooms and around the school will celebrate children's work and evidence progression;
- The school website will contain a science page to provide communication with parents including: useful websites, news and suggestions for out-of-school learning opportunities.

Planning - School curriculum

The planning of science lessons should be developed from the Science long-term plan (2017) created by the Science co-ordinator. This consists of the programmes of study outlined in the National Curriculum. The curriculum outlines the programmes of study to be covered by the end of the appropriate key stage allowing flexibility across the year groups. The schools long-term plan therefore distributes the relevant programmes of study into individual year groups to

ensure all content coverage and to aid when making links with other areas of the curriculum.

Whilst the long-term plan offers an example timetable for the coverage of content, this remains fluid across the year and can be taught when the class teacher deems most appropriate. Coverage is approximately one unit per half term. The long-term plan is easily accessible through the shared area (TA only, curriculum 17, science) and is provided to all staff including new beginners during induction.

The planning of individual lessons is the responsibility of individual class teachers but can be completed in year group partners. This should be completed using the school's topic planner and saved on Teacher Area Only under the relevant year group file. Class teachers should also keep a hard copy of planning in their planning folders. Twinkl and other resources are available to aid planning (see the section entitled Resources).

Assessment for learning

The assessment of science consists of formative and summative methods of assessment and is in line with the schools assessment and marking policy.

Formative assessments include:

- Differentiated questioning;
- Observation;
- Outcome of work;
- Verbal discussions about their work with instant feedback;
- Marking of work (see marking).

Summative assessments include:

- Children's understanding to be assessed against individual programmes of study. This should be done on the individual year group checklists and should be stuck in the front of science books;
- Teachers should use the checklist to accurately assess children's understanding and should be placed on the class tracker.
- National SATs tests are no longer required to be sat by each child. Schools could be sampled to take the test which requires only 5 children in Year 6 - these results are for national data only.

- Children's attainment will be recorded at the end of each Key stage internally from teacher judgement only.

Marking

Science marking should be in line with the school marking policy.

Resources

At present the following planning and materials have are accessible to teachers to support the development of Science.

- Twinkl 'plan it' subscription
- Hamilton Trust
- CLEAPSS
- STEM science

A wide range of quality teaching resources are also available within the 'cold room' These resources include science books as well as learning material to aid scientific enquiry across a wide range of science programmes of study. The science co-ordinator is responsible for the replenishment of all science resources on request from other teachers. It is the responsibility of all staff using the equipment to ensure it is respected, returned in the right place and kept tidy.

Inclusion

Science teaching at Ringway is fully inclusive. No child is excluded. Work is differentiated when appropriate to ensure the appropriate needs for each child have been met. Teachers are aware that children bring to school different experiences, interests and strengths that will influence the way in which they learn science. Teachers will use a variety of teaching styles and strategies to meet the needs of all pupils ensuring their learning of science shouldn't be limited by their understanding of other subjects such as writing.

The teaching of science should adhere to the schools inclusion policy.

Monitoring, review and evaluation

The Subject Leader follows the School Self Evaluation for Subject Leaders' Guidelines and is achieved through

- learning walks
- Monitoring and evaluation of pupils' work
- audit of resources and policy in practice
- assessment data.

/The role of co-ordinator

The role of the co-ordinator can be summarised as follows:

- To take the lead in policy development and the production of schemes of work.
- To monitor the effectiveness of the teaching of Science, both in the planning stage and in its delivery.
- To be available to support colleagues and to purchase and organise resources.
- To attend local authority network meetings to keep up to date in Science and advise colleagues appropriately.
- To liaise with other teaching staff regarding opportunities for children to participate in activities outside the school, e.g. Science days organised by other schools.

Health and safety

- The safe use of equipment should be promoted at all times.
- Risk assessments should be included on plans if and when deemed appropriate.
- COSHH guidance 'Be safe' should be followed.

Parental involvement

Following the guidelines in the whole School Policy on Parental Involvement in their Children's Education, parents may be involved in class based work if they can offer a particular skill or extend and compliment the class teacher's skills and knowledge.

Reporting to parents

Following whole School Policy based on National requirements and MCC guidelines.