

THE ROYAL SCHOOL (CROWN AIDED)



CURRICULUM AREA - SCIENCE

DATE REVIEWED JULY 2021

Next Review: This is a live policy and the Headteacher is responsible for maintaining its accuracy. Any required amendments should be sent direct to the document owner.

**AT THE ROYAL SCHOOL OUR VISION IS TO LIGHT UP THE WORLD THROUGH BEING -
THE BIG THINKERS— RESOURCEFUL - INDEPENDENT AND RESILIENT - GENEROUS OF
SPIRIT - HONEST AND - TEAM PLAYERS**

AIM

The aim of this policy is to:

- enable every individual regardless of ability to achieve their full potential in a safe and secure learning environment
- ensure that pupils have access to a consistent high standard of education in Science teaching and learning.

DEFINITION

Through The Royal School Science Curriculum our children will develop the skills, knowledge and understanding they need to question and understand concepts and phenomena that occur in the world around them and be equipped with the motivation to seek explanations for these. Children will learn the skills required for scientific enquiry and they will begin to appreciate the way science will affect their future on a personal, national and global level.

The aims of science are to enable children to:

- Ask and answer scientific questions
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- Plan and carry out fair scientific investigations, using equipment including computers
- Know and understand the life processes of living things
- Know and understand the physical processes of materials, electricity ,light, sound and natural forces
- Know about materials and their properties
- Evaluate evidence and present their conclusions clearly and accurately

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be 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.

NATIONAL CURRICULUM

Teachers are expected to have a good knowledge of the programmes of study and attainment criteria relevant to the age groups they are teaching and the age group below and above the one they are teaching.

Statutory requirements for the teaching and learning of Science are set out in the Early Years Foundation Stage Statutory Framework and the 2014 National Curriculum Science Programmes of Study for Key Stage 1 and Lower Key Stage 2.

The programmes of study for Key Stage 1 and Lower Key Stage 2 are have areas of content to be covered in each year level (see school curriculum map and National Curriculum) as well as specific teaching of working scientifically. Science content is always presented within the wider context than the content of the scientific topic. Teachers interweave, working scientifically and other curriculum areas through science to allow children to make connections across curriculum areas and solve real problems.

Pupils should read and spell scientific vocabulary correctly and confidently, using their growing word-reading knowledge and their knowledge of spelling. Each classroom has an area that displays the scientific vocabulary that pupils are currently aiming to incorporate into their spoken and written vocabulary.

ORGANISATION OF TEACHING AND LEARNING

At The Royal School science is taught through cross-curricular topics and outdoor education whenever possible. This allows children to add relevance, and make connections across learning areas. We encourage children in foundation stage, KS1 and KS2 to play and experiment scientifically. This is facilitated by providing an environment rich with questions and readily available equipment and resources to assist in planning and finding an answer to those questions.

The time spent on focused science teaching equates to approximately 60-90 minutes each week. Sometimes, lessons may be blocked together for extended sessions rather than teaching being limited to just one hour per day. Science may also be taught daily during certain topics and then less frequently at other times of year. Teaching methods are varied according to need and teacher preference at any given time. The activity under consideration and the location of such an activity will be taken into account. At both key stages science will be taught as activities for a whole class, small group or individuals as appropriate.

We assess children's progress and attainment in science based purely on the objectives for science and do not allow literacy skills to be a barrier to achievement in science

There are children of differing ability in all classes at The Royal School. We recognise this fact and provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child.. We achieve this through a range of strategies. In some lessons we do it through differentiated group work, while in other lessons we ask children to work from the same starting point but differentiate by the level of expectations, whether they be more able and talented or requiring learning support. Classroom assistants assist some children, to meet lesson objectives with guided support.

RESOURCES

There are a range of resources available to support the teaching of science across the school and teachers choose the resources that suit the learners in that class.

Across the school teachers choose resources that are relevant for their own class.

We use our extensive outdoor environment as much as possible in the teaching of science and we have teacher planning resources available for teachers to draw upon.

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SCIENCE CURRICULUM PLANNING

Science is a core subject in the National Curriculum. We use the National Curriculum as the basis for implementing the statutory requirements of the programme of study for Science.

We carry out the curriculum planning in Science in three phases: a long-term overview across the year, a mid-term topic based plan (either 6 or 12 weeks) and detailed weekly plans. We identify the key objectives in Science that we should teach to each year group. Additionally, we identify the key objectives in working scientifically in other year groups to ensure the needs of all pupils are met, whether they be more able and talented or requiring additional learning support. Lesson objectives are from the year level of the class, however teachers will at times plan assessment and extension activities that allow us to identify if pupils have grasped concepts beyond their current year level. We offer extensive opportunities for children to work at greater depth in their own year level rather than covering the content of higher year levels.

Each year's overview defines what we teach and ensures an appropriate balance and distribution of work across each term. The science leadership area covers the science curriculum, scientific elements of the Early Years Framework and speaking and listening. The area of "Speaking and Listening" from the English curriculum is seen as the basis of language development and crucial to the development of all subject areas. It is tracked and reviewed by The Headteacher along with all subject area middle leaders.

Class teachers complete a weekly (short-term) plan for the teaching of Science. This lists the specific learning objectives for each lesson and gives brief details of how the lessons are to be taught. It also includes brief details of what each group of children will be learning and their independent task. Differentiation is also noted. Whilst we do not require detailed weekly plans to be written, lessons must be planned in detail and this should be apparent in all informal and formal lesson observations. The weekly plans are uploaded to the shared drive by Thursday 3.30pm the week preceding teaching and also kept by the class teacher as an annotated working document to be used as part of a reflective planning process. Teachers reflect on pupil learning, assess on an ongoing basis and use target tracker gap analysis on a regular basis (twice per short term) to guide planning.

ASSESSMENT AND RECORDING

Teachers assess children's work in science on an ongoing basis. The formative assessments that teachers make as part of every lesson allows them to adjust their teaching and planning for subsequent lessons. Teachers match these short-term assessments closely to the teaching

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objectives. Target Tracker statements are used continually as an assessment aid by teachers to measure progress against the key objectives and to help them plan for the next unit of work.

Pupils are supported in self-assessment by the use of WALT (we are learning today) statements and individual target sheets from Year 1 to Year 4. Children may be working on a WALT over a number of lessons.

Pupils complete assessments tasks relating to each science topic; these contribute to teachers' assessment in order to monitor each child's progress against school and national targets. They are also used to inform and summarise learning for oral reports. Year-end assessments enable teachers to set targets for the next school year and help teachers to summarise the progress of each child for end-of-year reports. All assessment information is entered onto target tracker on a weekly basis. The next teacher uses target tracker as the basis for planning work and class groupings for the new school year. Assessments are made against the year's target tracker statements through work completed in books, practical activities, discussions and observation of maths in use.

Pupils use a learning journal to show the story of their learning in science and across curriculum areas. It is expected that presentation, writing and spelling in science will be at the same level as English and across the curriculum.

Teachers meet regularly to moderate assessment and review pupils' work against the objectives and expectations outlined in the national curriculum.

EQUAL OPPORTUNITIES

All pupils have an entitlement of access to the National Curriculum. Equal opportunities are considered when we decide upon the resources we provide and the teaching strategies we employ. In our curriculum planning we ensure that all pupils, with due respect to their culture, religion and background, have equal access to all areas of the curriculum, extra-curricular activities, all areas of the grounds, equipment and resources, the staff, and time to contribute to the whole class and group work.

SPECIAL NEEDS

Classroom support for those children who find learning difficult is provided through differentiated planning, appropriate resources and teaching assistant and teacher support.

GIFTED AND TALENTED

Classroom support for those children who share a special aptitude and potential in science is provided through differentiated planning, appropriate resources and teaching assistant and teacher support. The annual Science Fair is an opportunity for children to plan, investigate and communicate findings on an individual level.

DIFFERENTIATION

Science tends to be taught in mixed ability groupings. Teachers differentiate through open questions, peer support, a variety and range of activities to communicate findings. As well as differentiating by the resources they provide to pupils.

EARLY YEARS FOUNDATION STAGE

The Early Years Foundation Stage (EYFS) will provide children with an opportunity to explore and experiment with a wide variety of resources and tools in this subject area. The EYFS follow the national expectations laid out in the EYFS documentation, culminating in the end of Foundation Stage expectations. Staff plan activities and experiences that promote children's development and learning based on the Early Learning Goals outlined in the Foundation Stage Profile 2020. Science is not a specific area of learning for the EYFS. The EYFS area of “understanding the world” includes the beginning of working scientifically. The EYFS learning that links to the science curriculum is noted in the Science progression map .

COMPUTING AND USE OF INFORMATION TECHNOLOGY

ICT is used in science for pupils to

- observe and record work through video, audio, photographs, spreadsheets, work documents
- present work and communicate results and findings.
- Research and investigate topics through the internet and skype interviews.

STATUTORY END OF KEY STAGE ASSESSMENT

Teacher assessment is used at the end of KS1 to give a judgement for science.

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MONITORING AND EVALUATION

The Subject Leader is responsible for reviewing long term planning to ensure appropriate coverage. They will support teachers in the medium planning process to ensure high quality resourcing, teaching and learning in their subject area. They will review whole school performance in their subject area and provide an end of year review, including areas for development, for submission to the school development plan. They will review children's work in this area, assist in moderation of judgments across the school and maintain an up to date knowledge of changes and developments in science education for primary and EYFS children..

This policy should be read in conjunction with other relevant school policies and the science progression map.