



SCIENCE POLICY

Autumn 2021

AIMS

Science at Christ The King Primary School high aims to provide a quality science education for 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. It is about developing children's ideas and ways of working that enable them to ask and answer questions. In order to make sense of the world in which they live through investigation and using and applying process skills.

We follow the national curriculum which aims to develop:

- In KS1 - The principal focus of science teaching in key stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos.
- Lower KS2 - The principal focus of science teaching in lower key stage 2 is to enable pupils to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas

about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.

- In Upper KS2 - The principal focus of science teaching in upper key stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. At upper key stage 2, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information. Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.
- Encourage the development of positive attitudes to science.
- Deliver the National Curriculum Science orders in ways that are imaginative, purposeful, well controlled and enjoyable.

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| | <ul style="list-style-type: none"> • Help in developing and extending the children's scientific concept of their world and encouraging them to ask deeper questions about the world around them. • Deliver clear and accurate teacher explanations and skilful questioning. Providing guidance but at the same time allowing children the freedom to explore as independently as possible. • Make strong, purposeful links between science and other subjects. Using ICT in a meaningful way to extend their learning (Data Loggers, video, photography, microscopes and iPad). • Develop the use of scientific language, recording and techniques. • Enable children to become effective communicators of scientific ideas, facts and data whilst becoming experts at analysing the data they collect. • Develop the following skills of investigation – observation, measuring, predicting, hypothesising, experimenting, communicating and interpreting. |
| APPROACH | <ul style="list-style-type: none"> • At CTK, we will have a consistent planning scheme than engages our children, where the main focus is on the children understanding the context of the lesson through a big question. • Context provides the rationale for learning. It links the physical world to scientific ideas, in a similar way to practical work. • This is important as it serves as a great starting point to introduce the learning in a way that makes sense to the children. • It shows the relevance of what we are learning and therefore improves children's attitudes. • It makes abstract ideas more concrete. • It can spark curiosity. • If a relevant context is used it personalises the science e.g. investigating habitats in the local area for a purpose. <p>Working Scientifically in KS1:</p> |

- In Years 1 and 2 children will be taught to work scientifically by:
 1. Asking simple questions and recognising that they can be answered in different ways.
 2. Observing closely, using simple equipment
 3. Performing simple tests
 4. Identifying and classifying
 5. Using their observations and ideas to suggest answers to questions

Working Scientifically in Lower KS2:

1. Asking relevant questions and using different types of scientific enquiries to answer them.
2. Setting up simple practical enquiries, comparative and fair tests.
3. Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.
4. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.
5. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.
6. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.
7. Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.
8. Identifying differences, similarities or changes related to simple scientific ideas and processes.
9. Using straightforward scientific evidence to answer questions or to support their findings.

Working Scientifically in Upper KS2:

1. Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
2. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.
3. Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.

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| | <ol style="list-style-type: none"> 4. Using test results to make predictions to set up further comparative and fair tests. 5. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. 6. Identifying scientific evidence that has been used to support or refute ideas or arguments. <p>To summarise we will:</p> <ul style="list-style-type: none"> • Teach vocabulary - • Provide a context –increase motivation • Assess prior learning • Link to scientists in a particular field • Use stories to help memory • Choose how to work scientifically • Provide opportunities for pupils to apply knowledge <p>After assessing prior knowledge, present a problem and:</p> <ul style="list-style-type: none"> • Engage –AFL address misconceptions • Share technical vocabulary • Introduce new knowledge-in focus/context i.e. linked to story • Build on the knowledge • Children apply learning/record • Outcomes to inform next lesson |
| RESOURCES | <ul style="list-style-type: none"> • Resources for scientific enquiry are available with the vast majority of resources stored centrally. Teachers are now encouraged to keep resources within year groups in classrooms. Foundation Stage resources are stored within their own classrooms. • Staff should notify the co-ordinator of any extra resources required, of any breakages or losses that occur and of any new materials needed. • Unsupervised children should not be allowed to collect resources. <p>Sheets are discouraged within our science scheme, instead:</p> <ul style="list-style-type: none"> • Key questions assessing key knowledge • Key word spread: lots of key words on the board and pupils have to write a paragraph using as many key words as possible. |

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| | <ul style="list-style-type: none"> • What's wrong and why? There is an incorrect diagram on the board that students must re-draw and label to make it correct e.g. incorrect electric circuit. • True or False? Lots of statements on the board, some are right and some are wrong. pupils find the wrong statements and re-write them correctly. • What was the question? There are answers or key words on the board and students must write the questions. • Odd one out and why? Teacher gives 3 items – could be pictures. Pupils must find the odd one out and explain why. • Memory. 10 facts on the board. Pupils must learn these. After 5 mins remove the words and quiz the students. • What would happen next? Show pupils an image and then ask them to describe what would happen next and why e.g. football being taken deep under the sea by a diver. • Highlight it! Give students some text and ask them to highlight a specific type of word e.g. fuels/living things. It's great AFL as you can 'see their thinking'. |
| EYFS | <ul style="list-style-type: none"> • In EYFS - The world: children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes. • Reception classes are taught the required science elements of the foundation stage document through cross curricular themes |
| TIME ALLOCATION | KS1 receives 1 hour of science instruction once a week. In FS1/2 science will be taught the required science elements of the foundation stage document through cross curricular themes and targeted group work and provision. In KS2, students receive 1.5 hours of science per week. |
| ASSESSMENT | <ul style="list-style-type: none"> • Formative assessment, which is carried out informally throughout the year, enables teachers to identify pupils' understanding of subjects and inform their immediate lesson planning. • Science work is marked in accordance with our 'Marking and Feedback' policy. • Children will have a formal assessment at the end of each topic. • At the end of each term, teachers will allocate children's attainment on INSIGHT Tracking. |

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| MONITORING AND REVIEW | <p>At Christ The King we moderate and monitor science as a part of our self-evaluation approach to maintaining standards and supporting staff in their teaching.</p> <p>Science moderation involves analysis of children’s work in relation to expectations for the key phase-KS1, LKs2, UKs2. Science moderation achieves the following.</p> <ul style="list-style-type: none"> • Evidence of learning outcomes • Understanding and agreeing on evidence of achieving, emerging and extending • To gain insight into the nature of science teaching across the school. • It gives class teachers the opportunity to review their own practice and discuss teaching science with a subject specialist. • It gives the science leader an insight in to areas of strengths, enabling good practice to be shared among colleagues. • It allows resources to audited and for the assessment of current and future resource requirements. • It allows the science leader to set targets, demonstrating the schools commitment to self-evaluation and improvement of standards in science. • The subject leader will monitor teaching and learning ensuring that the content of the national curriculum is covered across all phases of pupils’ education. • The Curriculum committee of the governing body is briefed to oversee the teaching of science, and meets with the subject leader to review progress. • Any changes made to this policy will be communicated to all teaching staff. |
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Policy agreed by Governors: Autumn 2021

Signed: (Governor)

Policy to be reviewed: Autumn 2023