

Intent

At Christ Church School we aim to instil a love of science within our pupils. Science at our school supports our vision of *inspiring life in all its fullness* through its contribution to a wide breadth of curriculum and we believe that high-quality science education is essential for understanding and respecting the world around us. Science in our school aims to encourage curiosity and develop a sense of excitement, in order to make sense of the world in which we live and give children a strong understanding of the uses and implications of science, today and for the future.

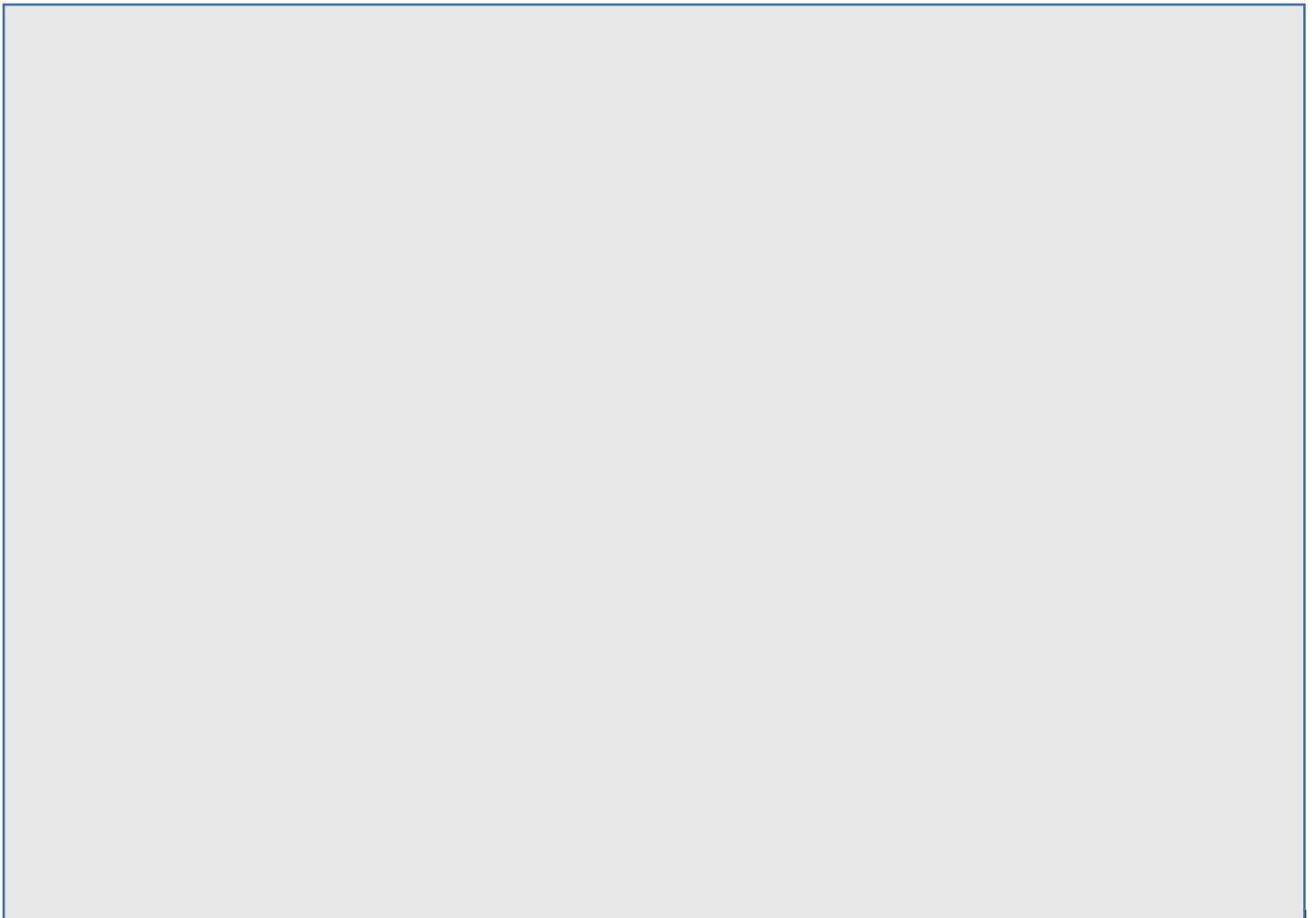
Our science curriculum is designed with high expectations in mind and provides opportunities for children to acquire the knowledge and skills they need to make progress throughout their time here at Christ Church and prepare them for when they move on to secondary science. At Christ Church, we aim to build and expand every child's science capital, in the hope that more children will continue to enjoy science and progress into STEM careers in the future. Science learning begins in Early Years in 'Understanding the World' and our curriculum covers the specific disciplines of Biology, Chemistry and Physics and these are made explicit to children in upper Key Stage 2.

The key skills needed to work scientifically are embedded in all our science teaching and build sequentially through the school, ensuring that all children have the opportunity to question, observe, discover, conclude and evaluate (essentially an understanding of the nature, processes and methods of science). Children are taught how to use scientific equipment by working practically throughout both Key Stages and we aim to encourage the children to be enquiry-based learners who can pose their own questions and seek answers to these. Science is taught across the curriculum wherever possible, including within additional enrichment activities, providing essential exposure and understanding for the children of how science impacts our daily lives.



Implementation

- Y1-6 class teachers follow the National Curriculum and ensure the working scientifically skills are taught, revisited and embedded. This builds on the foundations for Science learning within the EYFS curriculum in Reception, such as through working towards the Natural World Early Learning Goal.
- In KS1 and KS2, the science skills are taught alongside and through learning the science content. Lessons are carefully planned to ensure skills and knowledge progression within each year group, as well as throughout the school. The curriculum is designed so that by end of Year 6, pupils have built solid working scientifically skills (disciplinary knowledge) and have secure knowledge of the science content (substantive knowledge).
- A range of enquiry types are planned, taught and built upon across the Science curriculum (grouping and classifying; noticing patterns, observations over time, fair and comparative testing, research and modelling).
- Class teachers deliver science lessons and help to draw out links between previous learning and other curriculum areas.
- Class teachers are supported by the science subject leader and receive CPD through staff meetings and tailored support. Teachers demonstrate strong subject knowledge.
- Both formative and summative assessment is used in science. Teachers will use formative assessment (including questioning, observing, feedback and marking) to help shape a lesson, direct learning, address misconceptions, provide feedback and adapt future lessons. Summative assessment is carried out at the end of each science topic and



Year 6 at the Linnean Society learning about species classification.

Approach to assessment in Science

Ongoing assessment:

Throughout all lessons, teachers check for understanding and assess whether children have met the learning intention or not. Lessons are designed to instil specific substantive knowledge or key disciplinary knowledge and skills. Children are identified who may need additional support or intervention of some kind, and this is given in a timely manner. Pre-teaching of key vocabulary may also be beneficial for specific children. Ongoing assessment is done through observation, discussion with pupils, questioning, marking work, and discussion with additional adults.

Summative assessment:

Key learning for each year group is identified in our key learning sheets for each topic. This also includes key vocabulary. Using a range of evidence including observation, work sampling, discussion with pupils and questioning, teachers make summative assessments against key standards and statements for all pupils. This is shared with parents in end of year reports. This data is also analysed and used to decide on future targets or areas of improvement in science.



Adaptive teaching case studies

Many pupils with SEND or additional individual needs can fully access our science curriculum without specific adaptations to teaching. These are two case studies where small but specific adaptations have supported pupil progress.

- Pupil on SEN register with cognition and learning needs sometimes struggled with understanding of tier 3 vocabulary related to science topics. This child received some pre-teaching of key words prior to lessons to ensure they were able to grasp new learning and access all learning.
- Pupil on SEN register with cognition and learning needs struggles at times to focus for longer periods of times, or process new information without scaffolds. They were often assisted by an adult sitting with them, and were provided with key vocabulary word banks or visual cues to help them understand more difficult concepts.

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Ofsted curriculum research review and Ofsted subject report– summary and response/reflection

The Ofsted curriculum research review for Science (June 2021) reviewed a wide range of relevant educational research into both primary and secondary science teaching and identifies factors which may contribute to high-quality science education. The Christ Church reflection on and response to the curriculum review is summarised in our Autumn 2022 curriculum leader report.

The Ofsted subject report for Science: Finding the Optimum, was published in February 2023. The subject report built on the research review, shared strengths and weaknesses in Science in schools and identified factors which support effective curriculums, pedagogy, assessment and systems in Science. Below are summarised some of the main recommendations and findings from the subject review, alongside our responses and, where relevant, next steps.

Curriculum recommendations Schools should:	Our response – how does this align with our teaching and learning at Christ Church? Including any next steps, where relevant.
<ul style="list-style-type: none"> Ensure that the curriculum is specific about the knowledge that children in Reception should learn about understanding the world. This knowledge should connect with what pupils go on to learn in Year 1 science. 	<p>The Reception curriculum is the foundation for the Science knowledge and skills the children will cover in later year groups, e.g. Plants, space, light, seasonal changes, everyday materials, etc.</p> <p>In Year 1, children draw on the knowledge gained in Reception and expand what they learn:</p> <p>Plants</p> <p>Children in Reception will observe plants growing. In Year 1, they will label the parts of plants, identify and name plants, and will observe plants growing from seeds, perhaps beginning to think about conditions needed.</p> <p>Everyday materials</p> <p>In Reception, children will discuss similarities and differences between different materials. In Year 1, they will specifically identify properties of different materials. They also begin to sort and group materials based on these properties.</p> <p>Seasonal changes</p> <p>In Reception, children will identify that there are four seasons, and begin to think about some differences between them. In Year 1, the children will carry out enquiries to see how plants change over the course of a year. They will also look at difference in the length of day over the year.</p> <p>Animals including Humans</p> <p>In Reception, children will begin to recognise main body parts, observe basic life cycles of insects, match some infant with adult animals and begin to think about the importance of physical activity and health. In Year 1, children will build on this learning, thinking about the five senses and the body parts associated with them, begin thinking about diet and that some animals are herbivores, omnivores or carnivores, and begin classifying animals based on their animal class.</p>
<ul style="list-style-type: none"> Ensure that enough time is built into the curriculum for pupils to learn and remember key knowledge. It is important that pupils are helped to see how this knowledge connects with what they already know about science, so that they build connected knowledge. 	<p>The research states that <i>“There were a small minority of primary schools where pupils went for entire half terms without learning science. This is a concern because science is a core subject of the national curriculum, and pupils benefit from regular opportunities to revisit and build on their knowledge so that it is not forgotten.”</i></p> <p>We acknowledge that our curriculum model focuses the main part of our Science teaching in one half of the academic year. However, we have fully reviewed our curriculum structure in light of the Ofsted subject review, including checking what children knew and remembered of previous topics and are confident in continuing this model which provides a faster pace of learning and joined up CPD and enrichment opportunities and also addresses teacher work load concerns. We ensure children continue to rehearse key Science knowledge and skills throughout the year in a number of planned ways: spaced retrieval activities and games, low-stakes quizzes, key knowledge organisers sent home, morning work, homework. Key working scientifically skills are also rehearsed throughout the year in</p>

	<p>planned opportunities in other subject areas, such as geography and maths.</p> <p><i>See Target 1 below: Ensure that science skills and knowledge are continued to be focused on in first half of academic year.</i></p>
<ul style="list-style-type: none"> Ensure that the curriculum identifies and sequences the disciplinary knowledge that pupils need to work scientifically. This should not be limited to learning about scientific techniques, data analysis or fair tests. It should include developing their knowledge of all areas of working scientifically, including different types of scientific enquiry, such as pattern seeking, and concepts such as evidence and accuracy. 	<p>We have carefully considered and mapped out the working scientifically skills, and highlighted when classes will explicitly focus on learning these. We have also mapped out pupils' practical experience of the different enquiry types and provide ongoing training for teachers on these.</p> <p>This disciplinary knowledge is rehearsed in other lessons and other subjects as well, such as in geography or maths lessons. This can be found in our science curriculum pack.</p>
<ul style="list-style-type: none"> Ensure that all pupils have enough opportunities to take part in high-quality practical work that has a clear purpose in relation to the curriculum. At secondary school, this should include laboratory work, fieldwork and teacher demonstrations. 	<p>Our children take part in practical work in every year group. We have identified key enquiries to ensure that all five enquiry types are covered from Year 1-Year 6. In Reception, the children will carry out a range of enquiries based on their topics. Some suggestions for Secondary schools in the research are also part of our planned curriculum through the primary age range. E.g. In Year 1, the children carry out fieldwork to identify different plants in the local area and in Year 5, laboratory work is carried out when the children visit the Francis Crick Institute.</p> <p><i>See target 2 below: Continue to improve, add to and refine wider enrichment activities to complement the planned Science curriculum, continuing to increase child enjoyment and engagement in science.</i></p>
<ul style="list-style-type: none"> Ensure that the science curriculum is planned to take account of what pupils learn, particularly in mathematics. 	<p>Our curriculum is designed to take into account what the children have learnt in other subject areas, especially maths, as well. In most cases we have aligned our curriculum planning so that skills have been taught in maths prior to them being used within Science.</p> <p>However, we are aware that some disciplinary knowledge required for science needs to be taught explicitly before it appears in the maths curriculum, e.g. Venn Diagrams do not appear in the maths curriculum until Year 8. However, children as young as Reception or Year 1 will be taught how to use these to sort data.</p>
<p>Pedagogy and assessment recommendations Schools should:</p>	<p>Our response – how does this align with our teaching and learning at Christ Church? Including any next steps, where relevant.</p>
<ul style="list-style-type: none"> Ensure that, during explanations, teachers regularly connect new learning to what pupils have already learned. This includes showing pupils how knowledge from different areas of the curriculum connects. Ensure that pupils have a secure knowledge of what has been taught, before moving on to more content. This should include checking whether pupils have specific misconceptions 	<p>We have identified key knowledge in each year group and each topic. Teachers can refer to the science pack, and look back on previous times a topic has been taught to ensure they are aware of what has been covered.</p> <p>Teachers make wide-ranging, relevant links to prior knowledge in other curriculum areas and to children's wider prior general knowledge and interests too.</p> <p>When teaching this new information, teachers will link it to children's prior learning, ensuring there are no misconceptions or gaps that need to be addressed.</p>
<ul style="list-style-type: none"> Ensure that appropriate teaching and learning approaches are selected for specific content. 	<p>Teachers are aware that science content needs to be taught in a specific way. For example, key knowledge and working scientifically skills need to be taught before children can carry out an enquiry. Equally, certain topics need to be taught before others. For example, in Year 4, states of matter needs to be taught before sound, so that children are aware that sound waves will travel differently in solids, liquids and gases. In Year 5, forces need to be taught before Earth and space, so pupils can understand gravity.</p> <p><i>See Target 3 below: Continue to ensure all teaching staff, including new teachers, ECTs and those working in new year groups, are confident to</i></p>

	<i>appropriately sequence and interleave substantive and disciplinary science knowledge.</i>
<ul style="list-style-type: none"> Ensure that assessment checks whether pupils remember the substantive and disciplinary knowledge they have learned in previous years. This includes checking that they can use their substantive and disciplinary knowledge to select, plan and carry out different types of relevant scientific enquiry. 	Formative assessment is used regularly by teachers to assess prior knowledge so they can build on this or address misconceptions or any gaps in learning. Teachers can follow the information on key learning sheets to ensure this is secure. Children's knowledge of working scientifically skills is reported in end of year reports and analysed by the subject leader. This data is shared with class teachers, so they can see which children may need more or less support.
Systems at school and subject level Schools should:	Our response – how does this align with our teaching and learning at Christ Church? Including any next steps, where relevant.
<ul style="list-style-type: none"> Create a systematic and continuous approach to developing the science expertise of staff and leaders. This should align with the school's curriculum and take account of any specific needs and expertise. 	The science subject leader regularly attends LA network meetings and CPD sessions run by the Francis Crick centre. This information is then shared with all teaching staff, allowing them to develop their own science teaching knowledge and expertise. This also aligns with our science curriculum, as set out in our science pack. <i>See Target 3 below: Continue to ensure all teaching staff, including new teachers, ECTs and those working in new year groups, are confident to appropriately sequence and interleave substantive and disciplinary science knowledge.</i>
<ul style="list-style-type: none"> Support subject leaders to prioritise curriculum time for teaching key scientific knowledge. In some schools, the focus is on making sure that pupils learn and remember what has been taught, so that they develop increasingly sophisticated and connected scientific knowledge. However, too many subject leaders and teachers feel pressured to cover content and move on. 	We have highlighted key knowledge we would like children to leave each year group with, rather than expecting them to remember everything they are taught. This key learning is set out on our Key Learning sheets and revisited as part of spaced retrieval activities. We have highlighted that children need to be taught this knowledge, and key working scientifically skills, before they can carry out investigations to answer enquiry questions. We also want our children to be able to make links between the key scientific knowledge they are taught.

Last year's key developments and successes in 2022/23:

1. Continue to build on good practice from across the school with spaced retrieval and assessment activities to ensure consistent use of key knowledge sheets to support this

All teachers to use key knowledge sheets consistently as part of regular spaced retrieval activities and as assessment activities, providing important information regarding next steps and any gaps to address. All children have a good grasp of identified key knowledge.

22/23 target achieved: All key knowledge sheets were updated and sent home at the end of each science unit. Staff CPD was run to discuss these with teachers. Children were able to remember the key facts, as assessed through spaced retrieval activities.

2. Continue to investigate and refine wider enrichment activities to complement the planned Science curriculum to ensure these remain at 21/22 levels

All children are able to build on and enrich their Science learning outside the classroom or with visiting specialists.

22/23 target achieved: Work with the Francis Crick Institute was continued for both in-school class workshops and Year 5 visit to the institute. A range of class trips were carried out to Hampstead Heath and Linnean Society. Whole school eco week also provided several opportunities for Science enrichment and building on learning in the classroom. Could further refine by looking for other workshops or providers for upcoming year.



3. Ensure all teaching staff, including ECT and new staff members, are confident to appropriately sequence and interleave substantive and disciplinary science knowledge.

Both substantive and disciplinary knowledge are built progressively and sequenced so as to support each other. Pupil progress in both areas is assessed to be at least good across the school, with children knowing and remembering more of the planned science curriculum.

22/23 target achieved: Delivered multiple CPD sessions to staff following science leads training to share information and ideas. Teachers were more confident in teaching science, especially working scientifically and science enquiries due to this. New science curriculum pack gave more ideas for how to teach substantive and disciplinary knowledge over units. Completed multiple lesson visits and gave feedback to staff.

Key targets and actions moving forward (development priorities for 2023/24):

Target and intended outcome	Planned actions (including dates where applicable)
<p>1. Ensure that science skills and knowledge are continued to be focused on in first half of academic year. <i>Intended outcome: All children to continue building on and refining their working scientifically skills and recapping on prior learning, even when science lessons are not explicitly happening.</i></p>	<p>Spaced retrieval sessions in 1st half of year to focus on disciplinary as well as substantive knowledge. Non-fiction books from previous year’s topics to be available and in use in the classrooms. Potential for science trips/workshops in 1st half of year to recap or pre-teach – with focus on working scientifically skills. Use of working scientifically skills in other subject areas such as maths or geography (as set out in Science curriculum pack).</p>
<p>2. Continue to improve, add to and refine wider enrichment activities to complement the planned Science curriculum, continuing to increase child enjoyment and engagement in science. <i>Intended outcome: All children are able to build on and enrich their Science learning outside the classroom or with visiting specialists, supporting them to remember more of the planned curriculum.</i></p>	<p>Crick workshops to take place across the school in summer term. Year 5 to visit Crick Institute for enrichment with support provides for planning other Science trips, where appropriate. Use local science leader network as good resource for ideas. Continue to use the Royal Institution enrichment opportunities and additional opportunities such as Young Engineer scheme. Continue to promote equipment loans across the school. Investigate other workshops or trips that will add to and complement the already excellent science teaching.</p>
<p>3. Continue to ensure all teaching staff, including new teachers, ECTs and those working in new year groups, are confident to appropriately sequence and interleave substantive and disciplinary science knowledge. <i>Intended outcome: Both substantive and disciplinary knowledge are built progressively and sequenced so as to support each other. Pupil progress in both areas is assessed to be at least good across the school, with children knowing and remembering more of the planned science curriculum. Staff are confident in the teaching of science.</i></p>	<p>Staff CPD on sequencing and interleaving both areas of science learning. Specific support from Science leader for newer staff/staff in new year groups, if needed. Attending science leads CPD/network meetings</p> <p>Monitoring through lesson visits, review of planning, pupil voice and assessment data.</p>

Work sampling - Disciplinary knowledge: Working scientifically
Planned progression in one enquiry type: Comparative or Fair Testing.
Taught within the context of a range of science content.

Year 1

Comparing how waterproof different materials are.

Science Investigation
 An investigation to find out which materials are waterproof.

What will we need?
 • Different materials
 • Water
 • Tray
 • Recording sheet
 • Small cups

What will we change?
 • Material

What will we keep the same?
 • Time
 • Size

Material Name and Number	Prediction Waterproof? / or *	Result Waterproof? / or *
1. Plastic	X	✓
2. Tissue	✓	X
3. Fabric	X	X
4. Paper	X	X

What have we found out?
 The PAPER is the most waterproof material because it does not absorb the water.
 what happened to the paper?

Year 2

Comparing whether a bean will grow more quickly inside or out.

Will a bean grow more quickly inside or out?

This is what we found.

Seed type	Started to germinate first	Grew more after 3 weeks
Bean	Inside / Outside	Inside / Outside

What did you notice about the seeds? Did they all behave in the same way?
 I noticed that the beans on the sides of both sides as the window they did not behave the same because the inside is growing more.

Why do you think this happened?
 Because inside is warmer.

Year 3

Comparing which materials will have more or less friction with a spinning top.

Friday 14th July 2023
 L.I. To investigate the effects of friction on different surfaces.

1. Table
 2. Science book
 3. Rubber
 4. Carpet
 5. Sandpaper
 6. Tilt

The surface that created the most friction is tilt.
 The surface that created the least friction is the table.

The surface created different results of friction because some of them were smooth and some of them were rough.

Material	More friction	Less friction
On table so you don't slip	✓	
Ice skating so you can slide		✓

Year 4

Comparing different switches to see which would work.

What is the purpose of a switch?
 To open or close a circuit and provide this with whether or not a lamp lights in a simple series circuit.

What is the purpose of a switch?
 To let you open or turn it on and off without breaking the wire.

Will the bulb light up? What's why not?

Yes because the switch is open	Yes because the switch is closed	No because the wires cross	No because it is an insulator
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Year 5

Comparing surface area of a parachute to see if it impacts how quickly an object falls.

Wednesday 5th July 2023
 L.I. To plan an investigation into the effectiveness of parachutes

We have learnt that gravity pulls objects towards the centre of the Earth. We learnt about Galileo Galilei and his experiment proved that all objects fall at the same rate, no matter what their mass is. On the moon a hammer and a feather hit the ground at the same time. But why? There is no air on the Moon. Air pushes against any object moving through it. This is known as air resistance. On Earth, air resistance acts on both objects. The feather has a large surface area in comparison to its mass. The hammer has a small surface area in comparison to its mass. Air resistance therefore has a greater upwards force on the feather.

We then decided to test how the surface area of a parachute affects their fall and tested which of the three parachutes is the slowest and fastest hitting the ground. We found out that the greater the surface area of the parachute the greater the air resistance and therefore the slower the fall.

Parachute	1	2	3	Average	Best
1	1.51	1.61	1.05	1.19	1
2	2.27	1.94	2.16	2.12	2
3	2.02	2.22	1.44	1.59	3

1) Explain the data on the table.
 2) What could have made our scientific enquiry more accurate? What factors influenced our data?
 We could have done better if we changed the parachute and we did it more times.

Which enquiry types did you use today?
 Which enquiry types did you use today?

Year 6

To compare the brightness of a bulb and the quantity of batteries used.

Monday 26th June 2023
 L.I. To investigate the brightness of a bulb, of the volume of the battery with the number and voltage of cells in the circuit.

Enquiry question: How does the number of cells affect the brightness of a bulb?

Equipment
 - Wires
 - Crocodile clips
 - Bulb
 - Cells
 - Battery holders

In this experiment your investigation, we will be using observing.

Method
 1) Create a circuit which includes 1 bulb, wires, crocodile clips and cells.
 2) Observe the brightness of the bulb and rate the brightness on scale 1-10.
 3) Record data in a table.
 4) Add a cell and repeat the steps 2-3 before adding another

Work sampling

Plants – example of planned progression in substantive Science learning through the school

Reception

Reception thought about what plants might need to grow, then planted and observed their own bean plants as part of their topic on Jack and the beanstalk.

Year 1

Identify and label main parts of a flowering plant. Use an identification key to identify plants in their local environment, then describe plants and some of their main parts.

Year 2

Considered what bean plants would need to grow well, and made predictions based on their prior knowledge from Year 1 and Reception. They also investigated conditions for cress plants to grow.

Year 3

Labelled the main parts of a flowering plant and learnt about the function of each of these. Children then observed how water travels to different parts of the plant using coloured water.

Monday 20th May 2022

I. To identify and describe the functions of different parts of a plant.

Leaf
On a plant leaves absorb sunlight to help it grow.

Stem
The stem on a plant holds it upright but sometimes it gets weak and you need a stick instead.

Root
The root on a plant can absorb water and sunlight nutrients.

Flower
The flower attracts insects to spread pollen so it can reproduce.

What does reproductive mean?
Reproduce means make more babies.

We placed some white roses into a jar of water containing red food colouring.

Over time, we saw that the red coloured water travelled up the stem and into the leaves and petals of the flower, dying there red.

This shows that the water travels around the plant through the stem.

Year 5

As part of living things and habitats topic – dissected a flowering plant, and identifying main parts using their prior knowledge. Children then learnt about asexual and sexual reproduction of plants, considering advantages and disadvantages of each.

Tuesday 9th March 2022

I. To identify the key parts of a flowering plant.

Before we learnt about the sexual reproduction of flowering plants, we learnt about the key parts. We then examined a flowering plant by taking a closer look at it with a magnifying glass and dissecting it using tweezers and a scalpel. We scanned the parts we dissected to a piece of paper using double-sided tape and then labelled them. Once we had done this, we drew observational drawings of the flowering plant and labelled these.

What working scientifically skills did you use in this?

We were recording using accurate diagrams and labels.

Wednesday 10th April 2022

I. To understand how plants produce sexually.

Sexual reproduction is when the pollen from the male part of the flower meets the egg from the female part of the flower. This process is called pollination.

Stamen - The part of the flower that produces pollen. It has two parts: the anther and the filament.

Pistil - The part of the flower that receives pollen. It has three parts: the ovary, the style, and the stigma.

Carpel - Female part of the pistil. It is made up of the ovary, style, and stigma.

Stigma - The sticky part of the pistil where pollen lands.

Style - The tube that carries pollen from the stigma to the ovary.

Ovary - The part of the pistil that contains the egg cells.

Seed - The new plant that grows from the egg cell and pollen.

Sexual reproduction is the first stage of sexual reproduction. During this stage, pollen grains from the male part of the flower land on the sticky part of the female part of the flower. This is called pollination. The pollen grain then grows a tube called a pollen tube that carries the pollen to the egg cell. This process is called fertilisation. During this stage, the pollen tube and the egg cell combine to form a zygote. The zygote then grows into a seed. The seed then grows into a new plant.

Asexual reproduction is the second stage of sexual reproduction. During this stage, the pollen tube and the egg cell combine to form a zygote. The zygote then grows into a seed. The seed then grows into a new plant.

Monday 15th April 2022

I. To understand how plants reproduce asexually and consider advantages and disadvantages of sexual and asexual reproduction.

	<u>Disadvantages</u>
<p><u>Sexual Reproduction</u></p> <ul style="list-style-type: none"> Diseases will not affect all the individuals in a habitat because the will all be different. The species can change over time to adapt to new environments and habitats. 	<ul style="list-style-type: none"> Time and energy we needed to wait for another parent plant to reproduce with. Reproduction is not possible for an isolated plant.
<p><u>Asexual Reproduction</u></p> <ul style="list-style-type: none"> Only one parent plant is needed so new plants can be made even if there are no other plants nearby. There is no variation or difference in new plants so the species is less resistant to diseases or changes in climate. The population can be increased. Good features of the parent plant will always be passed on. 	<ul style="list-style-type: none"> There is no variation or difference in new plants so the species is less resistant to diseases or changes in climate.

Some plants reproduce asexually because the bulbs are underground food storage and they hold on to them. Then a new plant grows out of the side of the bulb. For example onions and daffodils.

Some plants reproduce asexually because they grow runners. Runners are horizontal stems which grow just like the stem you grow roots. The plant constantly reproduces. For example strawberry plants and spider plants.

Some plants reproduce asexually because they take tubers. Tubers are underground food storage and they use the food to break new plants/tubers. For example potatoes and garlic.

A form of asexual reproduction where the parent plant produces clones of itself.

2022/23 Enrichment of our Science curriculum

Healthy living workshops linked to PSHE learning

Healthy Living with A Life

As part of our PSHE learning about keeping healthy and safe, Years 2 and 3 took part in a fun morning of workshops exploring Healthy Living with A Life. They explored different work stations relating to food, exercise, water and sleep and then took part in a fun fitness session in the playground.



February 2023

Whole-school PSHE week, linking to healthy lifestyles

PSHE Week
Keeping Safe and Healthy
Year 4

We started the week by learning about oral hygiene. We learnt about why it is important to visit the dentist regularly, brush twice a day with fluoride toothpaste and how diet can impact our teeth.

We learnt about risks, hazards and danger. We spotted hazards in pictures and discussed what we could do to minimise the danger.

We found out how to stay safe when we are near water, trains and roads. We made posters to promote good safety when out and about in our local environment.

We role played what we should do in an emergency situation. We have to remember to tell the operator as much information as we can. **D R S A B C**

We had a visit from a police officer and learnt about how to stay safe when we are out in public.

We created presentations in small groups to explain what we had learnt. We wrote songs and poems about good oral hygiene!

We also learnt basic first aid and each received a certificate!

We visited the West Hampstead Fire station where we learnt about fire safety and what to do in an emergency. We even got to have a go with the fire hoses!

<https://christchurchschool.co.uk/wp-content/uploads/2023/02/Y4-PSHE-Keeping-Healthy-and-Safe.pdf>

<https://christchurchschool.co.uk/wp-content/uploads/2023/02/Y5-PSHE-Keeping-Healthy-and-Safe-1.pdf>

<https://christchurchschool.co.uk/wp-content/uploads/2023/02/Y6-PSHE-Keeping-Healthy-and-Safe.pdf>

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<https://christchurchschool.co.uk/wp-content/uploads/2023/02/Y3-PSHE-Keeping-Healthy-and-Safe.pdf>

<https://christchurchschool.co.uk/wp-content/uploads/2023/02/Reception-PSHE-Keeping-Healthy-and-Safe-1.pdf>

Whole-school Eco Week, linking to sustainability and environmental issues

This week is our Eco Week and we have been taking part in lots of events to help us to care for our global and local environment:

Free bike checks to help us travel more sustainably

Learning about how our food choices can affect the planet and trying tasty new vegetarian dishes all week for lunch, with a parent tasting session, too!

Finding out about the Heath Hands charity and how we can look after Hampstead Heath

A free uniform and shoe swap to make good use of the clothes we have grown out of!

Walk to school week activities!

ECO WEEK

I TRIED SOMETHING NEW

WALK WITH WILDLIFE

HEATH HANDS

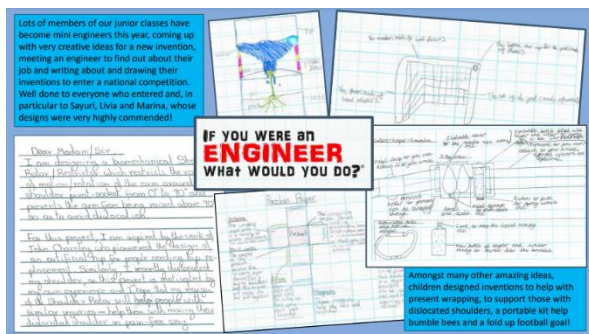
Trips and workshops linked to our science learning

<https://christchurchschool.co.uk/wp-content/uploads/2023/07/Y6-trip-to-Linnean-Society-July-2023-1.pdf>

<https://christchurchschool.co.uk/wp-content/uploads/2023/07/Francis-Crick-Science-workshops-June-2023.pdf>

<https://christchurchschool.co.uk/wp-content/uploads/2023/07/Y2-Heath-habitats-trip-June-2023.pdf>

Young Engineers



Pupil voice

Pupil voice discussions in Autumn 2023 demonstrated that:

Children could talk about what they learnt in the previous year group:

Y3 – In Year 2, we learnt about plants. We also did this in Y1

Y4 – In Year 3, we learnt about rocks and soils – the three types of rock: igneous, sedimentary and metamorphic.

Y5 – In Year 4, we learnt about states of matter and electricity. For States of Matter we looked at ice and chocolate to see which would melt quicker. We made houses with working electric circuits

Y6 – In Year 5, we learnt about the gravitational pull of the Earth and how if you do sky diving, gravity will pull you down but air resistance slows your descent. We learnt about space and the solar system

Children in upper KS2 were able to remember specific working scientifically skills

Y5 – collecting data and displaying data

Y6 – presenting data and research, making and using hypotheses

KS2 children could remember specific enquiry types they had carried out in previous year group:

Y3 – We watched plants grow and looked for patterns

Y4 – We compared rocks to see if they were permeable or impermeable

Y5 – Researching weather stations. Comparative test with melting. Observing eggs over time

Y6 – Fair testing. Observing over time

The children could discuss how their new learning builds on prior knowledge – e.g. in relation to plants

Y2 – In reception we learnt about the beanstalk and grew plants

Y3 – We learnt about bulbs in Y2 after we had learnt about parts of a plant in Y1

Y4 – In Y2 we learnt about life cycles of plants

Y6 – In Y1 we learnt about parts of a plant, in Y2 we grew plants and observed them. In Y5 we then dissected a flower to see the parts in a real plant.

They could talk about how they are helped to remember what they learn in science:

Y4 – we do things for homework

Y5 – songs in assembly.

Y6 – in other classes' assemblies, we remember what we have learnt. We also go on trips. Experiments are memorable.

What makes our curriculum provision for Science exceptional and beyond the expected?

- Relationship with the Francis Crick Institute for resources, CPD and enrichment
- Use of Hampstead Heath education centre and Heath in general for enrichment, as well as use of world class museums such as Science Museum, Royal Observatory and Royal Institution
- Clear progression of skills taught in each year group, building on what children have previously learnt, for both substantive and disciplinary knowledge

Key points for discussion with governors about this report

- Sharing of work sampling with reference to where knowledge and skills have clearly been built on throughout the school
- Updating governors on links with Francis Crick provision
- Share key targets for development
- Discussion of curriculum structure and how learning is recapped and kept up in first half of year (response to Ofsted subject report)