

Science

Intent

As a school, we are aiming to

- Ensure an appropriate progression of science skills and knowledge is in place over time so that pupils are supported to be the best scientists they can be, and challenge teachers to support struggling scientists and extend more competent ones.
- Ensure an appropriate progression for vocabulary is in place for each phase of learning, which builds on prior learning.
- Identify scientists who underpin specific areas of the curriculum and raise aspirations for pupils.
- Keep up to date with current science-teaching research and subject development through an appropriate subject body or professional group.

Implementation

In the classroom we aim to deliver the curriculum:

Teachers will:

- Start with what the children know, understand, can do and able to say. Daily Review: Revisit previous learning.
- Provide information and scientific concepts.
- Specify key vocabulary to be used and its meaning.
- Provide opportunities for the children to investigate in a variety of contexts.
- Obtain and present evidence through observations, comparisons and collected data.
- Consider and evaluate evidence making connections with scientific knowledge and understanding.

The children will be:

- Engaged because they are challenged by the curriculum which they are provided with.
- Resilient learners who overcome barriers and understand their own strengths and areas for development.
- Able to critique their own work as a scientist because they know how to be successful.
- Safe and happy in science lessons which give them opportunities to explore their own creative development.
- Encouraged and nurtured to overcome any barriers to their learning or self-confidence because feedback is positive and focuses scientific skills and knowledge
- Develop scientific skills and confidence over time because of careful planning, focused delivery and time to practice and hone skills.

Impact

Pupil Voice will show:

A developed understanding of the methods and skills of scientists at an age-appropriate level

- A secure understanding of the key techniques and methods for each key area of the curriculum: field work, place and location knowledge, and human and physical knowledge.
- A progression of understanding, with appropriate vocabulary which supports and extends understanding
- Confidence in discussing science, their own work and identifying their own strengths and areas for development

Displays and books will show:

- Pupils have had opportunities for practice and refinement of skills.
- A varied and engaging curriculum which develops a range of scientific understanding and skills.
- Developed and final pieces of work which showcase the skills learned.
- Clear progression of skills in line with expectations set out in the progression grids.
- That pupils, over time, develop a range of skills and techniques across all of the areas of the scientific curriculum.

In Key Stage 2

At Lathom Junior we follow the National Curriculum in Science. We ensure that all areas in Science follow a progressive curriculum so that we can build on previous learning and extend to new learning.

Here is an overview of the Science topics covered in each Yeargroup.

Year 3 Science 2022/23	Light	Animals, including humans	Rocks	Plants	Plants	Forces and Magnets
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Year 4 Science 2022/23	Electricity	Animals, including Humans	States of Matter	States of Matter	Sound	Living things and their habitats
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Year 5 Science 2022/23	Properties and changes of materials	Properties and changes of materials	Earth and space	Forces	Animals, including humans	Living things and their habitats
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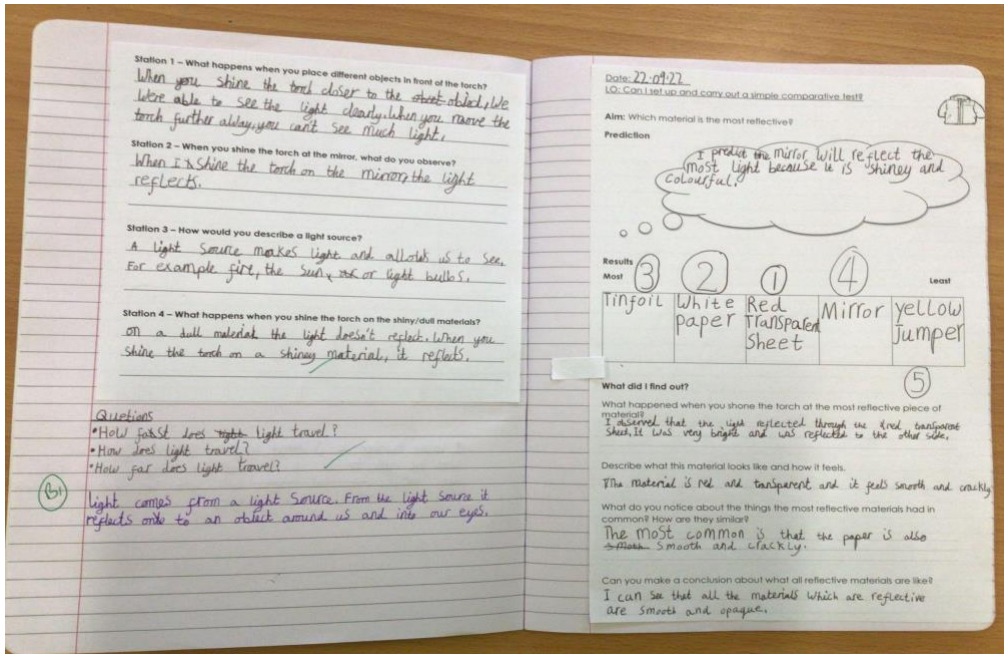
Year 6 Science 2022/23	Electricity	Evolution and inheritance	Light	Animals, including humans	Living things and their habitats	Science Fair
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Sorting game: EAL

Year 3 – photographs

Example of book work in Year 3 during the topic of Light



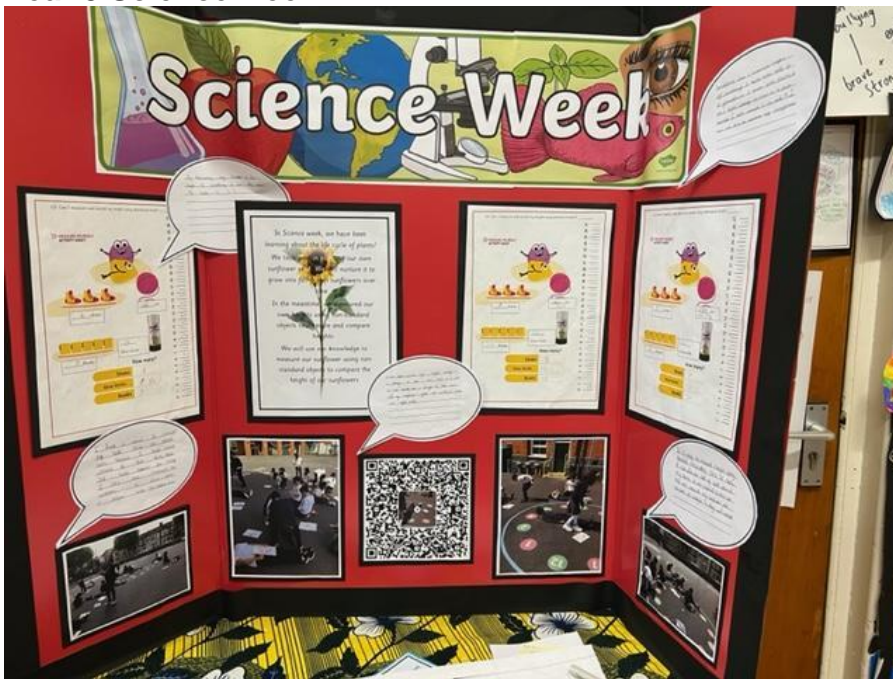


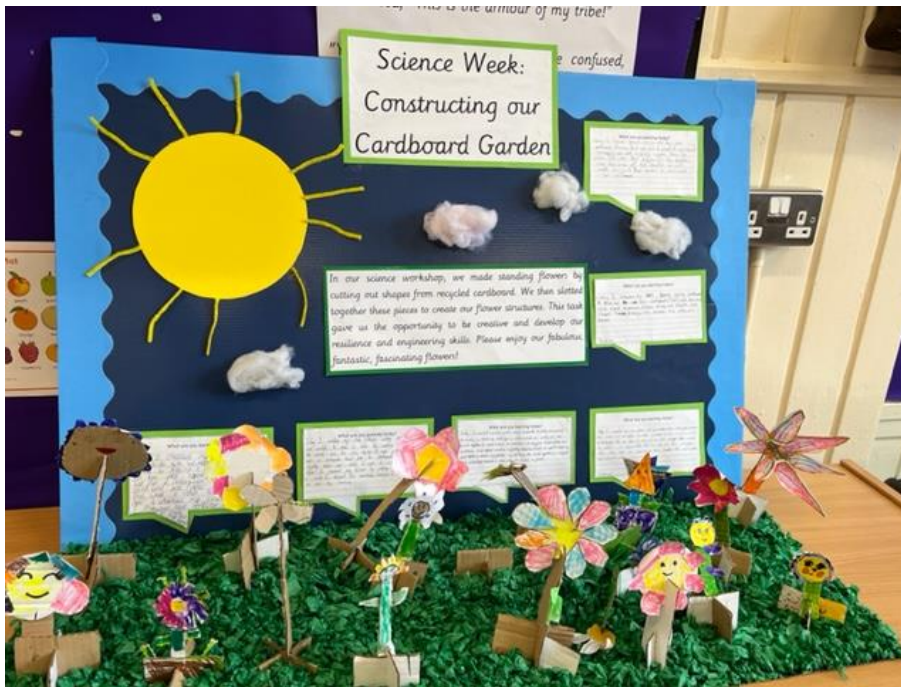
Year 3 topic- Magnets and Forces





Year 3 Science week



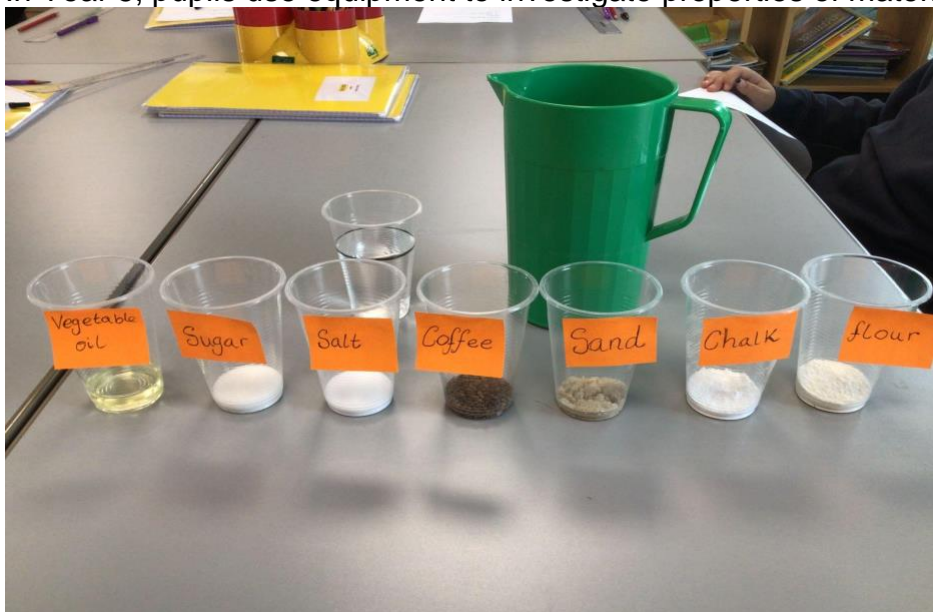




Year 4

Year 5

In Year 5, pupils use equipment to investigate properties of material.





1. Did you find a quicker way to determine whether an object had particular properties without testing?
2. Looking at your data, what patterns can you see?
3. Can you make any generalisations about particular materials and their properties?

1. A quicker way to find an electric conductor is by checking if it's metal.
2. All transparent objects were plastic. The conductors were metal.
3. Metal have conducting materials and plastics are transparent.

Q: Can I present my results in a bar graph?

Aim

Which material is the best thermal conductor?

Prediction

I think that the metal will be the best thermal conductor because it conducts electricity and so should conduct heat.

Variables to stay the same:

Variables to change:

Apparatus

You will need

- A plastic, metal and wooden spoon
- A bowl of hot water
- A knob of frozen butter
- A plastic bead



Method

1. Place 3 spoons into an empty bowl.
2. Place a small knob of butter at the top of each spoon.
3. Put a bead in each pat of butter.
4. T carefully pour hot water into the bowl until it is almost completely full. Be careful not to allow the spoons to fall into the bowl.
5. Watch carefully to see what happens to the beads. Every minute record with a tick if the bead is still stuck to the butter or a cross if it has taken off. Do this for 10 minutes.

Results

Table showing the time taken for the bead to fall

Material	Minutes									
	1	2	3	4	5	6	7	8	9	10
Plastic										
Wood										
Metal										

Conclusion: What did you discover? Was your prediction correct?

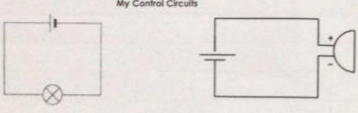
Year 6

Using equipment to do practical investigations followed by Scientific drawings and explanations.

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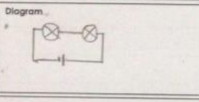
10: Can I record my results using scientific diagrams?

My Control Circuits



A) 2 bulbs and 1 battery

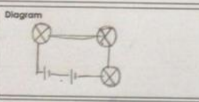
Diagram



What did you observe?
The resistance has increased because there are 2 but components sharing the battery.

B) 3 bulbs and 2 battery

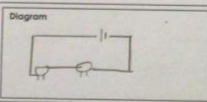
Diagram



What did you observe?
The energy from the battery is being transmitted to all the bulbs however with one is the brightness has decreased.

C) 2 buzzers and 1 battery

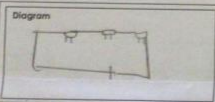
Diagram



What did you observe? The loudness of the buzzers have decreased compared to the control circuit because the current from one battery has been split across two buzzers.

D) 3 buzzers and 1 battery

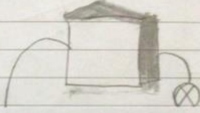

Diagram



What did you observe? I predict that the sound of each buzzer will be very less because there is only 1 battery. They may not even work.


A series circuit contains one path for electricity to travel through. If the series circuit breaks in any place the entire circuit stops working.

The current is the same everywhere in a series circuit, meaning a bulb will be the same brightness wherever you place it in a circuit.

Two bulbs and one battery

Three bulbs and one battery



Two batteries and one bulb

One battery and two buzzers

Useful websites

Primary

[Explorify](#)

[The Great Plant Hunt](#)

[Woodland Trust](#)

Enrichment and local science

[Affinity Water Education](#)

[British Science Association \(BSA\)](#)

[Children Challenging Industry](#)

[Future Morph science careers](#)

[GSK Stem Education](#)

[I'm a scientist](#)

[NASA](#)

[National Space Centre](#)

[Royal Institute Experimental](#)

[Science Bob](#)

[Science museum](#)

Sphere science

Science Sparks