Evidence Slides PSQM

Broadmead Primary Academy

We are a 2 form school, with a nursery and reception. Recently we have added a SEN provision which we call ELP. We are in an area of high deprivation, 51.8% PP and 49.5% free school meals. Level of SEN Support level is 20.8% and 49.5% EAL.. We currently don't have a PTA but there is good presences at school community activities for example at the summer fair and Christmas community meal. Engagement with learning workshops/parents evenings is low. We teach in topics so therefore we don't teach science weekly we teach in topic blocks and the knowledge is spread over two years as we teach through IPC curriculum through milestones.
We have completed the PSQM previously but we have had changes to our curriculum since then.

PSQM
Primary Science Quality Mark

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SLIDE 2: Vision and Principles

Broadmead's Principles for Science

"At Broadmead, we believe that science is a powerful tool for developing curious, knowledgeable, and confident individuals who will be tomorrow's leaders. Through hands-on learning and real-world experiences, we aim to ignite a passion for discovery and help every child build the science capital they need to understand and shape the world around them. We work together as a team—pupils, teachers, and staff—to inspire and support each other in this exciting journey of scientific exploration."

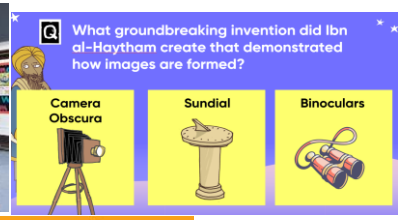
Safe. Happy. Science.

- **Hands-on Learning**: We provide exciting opportunities for practical, real-world experiences that bring science to life and spark curiosity.
- **Safety and Support**: We ensure all students have the resources and guidance they need to explore science safely and confidently.
- **Collaborative Exploration**: We work as a team—teachers, pupils, and staff—to share ideas, support learning, and inspire scientific thinking.
- **Engagement and Discovery**: We encourage children to ask meaningful scientific questions, explore through experiments, and make connections to real-world situations.
- **Growth and Enthusiasm**: We foster a love of learning by building on prior knowledge, celebrating new discoveries, and offering activities like trips and workshops to deepen understanding.

SLIDE 3 - CDA – The science curriculum engages, inspires and challenges all children by promoting inclusion and equity

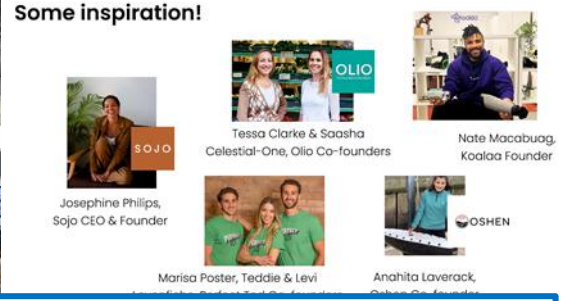
The strategic priorities to develop the principle of ***promoting inclusion and equity*** **(CDA)** for our school were**:**

Because of the changes to our curriculum (now using the IPC scheme academy-wide) we have not had lessons focused on learning about scientists linked to topics, meaning children haven't been able to see how science and scientists directly impact their own lives. We need to get better at highlighting the contributions of scientists from different genders, ethnicities, and cultures—and at contextualising those contributions so that pupils understand the relevance of science (and scientists) to their everyday experiences.



As Creatives 'The Science of Change!' workshop for Reception to Y6 with a focus on diverse Scientists. Sparking interest in a diverse range of scientists from around the world who were responsible for an array of things. Children completed interactive activities to complement sparking engagement for all.

Team Repair workshop to promote equity in STEM – girls, pupil premium, and BAME students. Endorsing enjoyment of the subject, and career prospects.



Team Repair assembly run by two young female entrepreneurial engineers discussing electronic waste and how it affects our lives. Generated curiosity and allowed children to ask questions.

Student quotes before that "I don't know a job that involves stem" to stating that they want to be an engineer to fix games instead of waste them because "the world needs to be better"

- Year 4 pupil

KS2 Survey about STEM careers before and after Science week focus on diverse scientists and engineering workshop.

"The school encourages pupils to develop their leadership roles. For example, the members of the 'green team' help to protect the environment through doing activities such as litter picking in a local park and recycling in school"

Ofsted, 2023

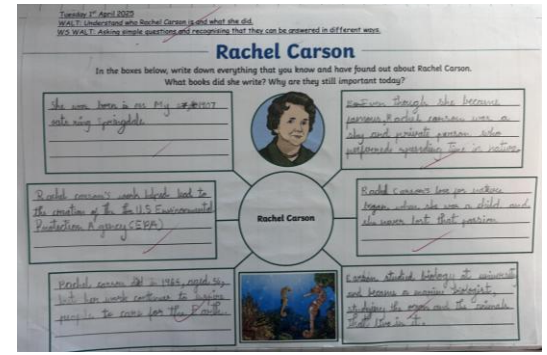
SLIDE 4 - CDA – The science curriculum engages, inspires and challenges all children by promoting inclusion and equity

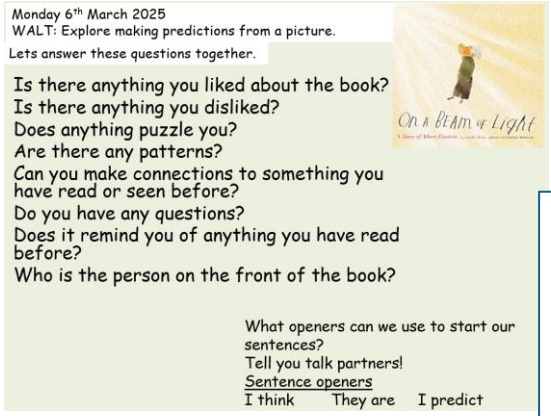
Photos showcasing children taking ownership of Green team through litter picks, planting trees, and energy saving posters they've made around school

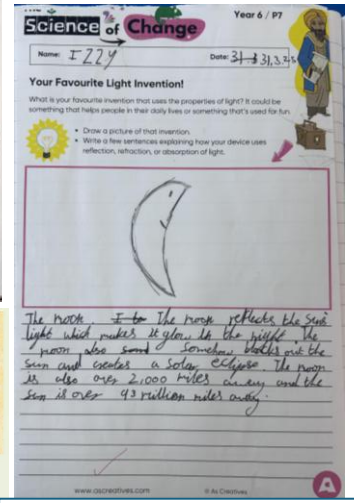
Children completing school litter pick, promoting responsibility of environment.

"Science learning is going well at Broadmead when children ae actively engaged, asking questions, exploring concepts through hands-on experiments and connecting their learning to real-world situations"

Year 2 class teacher







Photos of various scientists taught this year – different backgrounds, ages and genders. This is to inspire and highlight work for a range of scientists.

"We've cleaned up the pond, planted lots like trees and roses. We've also litter picked with Green Team!"

- Year 3 pupil part of student council

"It's important to help the school. There was mess everywhere before Green team, we help birds and other animals, what we do is important for their safety and the environment"

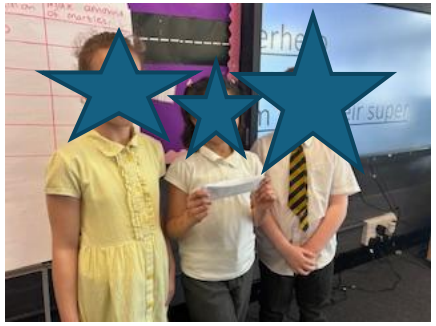
Year 5 pupil part of Green Team

"Leaders ensure that all pupils have the same opportunities to take part in all that the school organises."

Ofsted, 2023

SLIDE 5 - CDB – The science curriculum engages, inspires and challenges all children through planned progression in content and procedural knowledge

The strategic priorities to develop the principle of ***planned progression in content and procedural knowledge (CDB)*** for our school were: Although our curriculum already outlines a clear, progressive pathway, we must strengthen how we discreetly integrate and explicitly teach scientific enquiry skills—especially hands-on investigations—at key, age-appropriate milestones. Our over-reliance on "learning questions" has sometimes masked core concepts, so we will sharpen lesson planning and curriculum mapping to boost clarity, coherence and genuine real-world relevance. Monitoring has also flagged gaps in enquiry skills, highlighting the need for targeted CPD.



CREST box experiment where children independently designed, set up and evaluated experiments.

The difference we see in children is that that children can recall learning from previous years on the same topic "Last year we learned that animals are babies and then they become adults" Year 3 child

Nursery lesson where farm came to the school, and children were able to provide hands-on learning experiences, engaging multiple senses, and fostering a deeper understanding of the natural world.

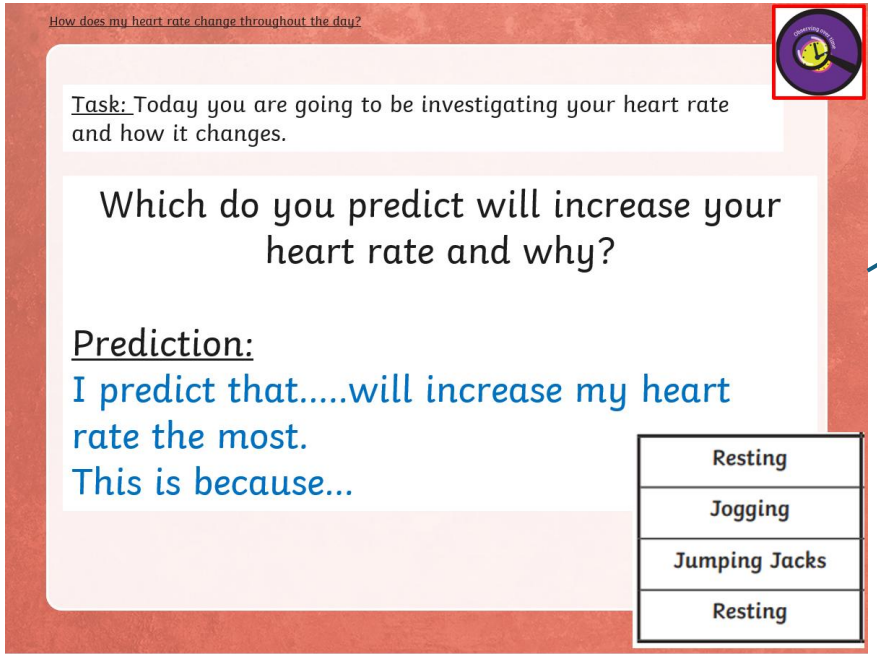
Nursery lesson on space, children developing oracy through asking questions inspired by story and 'Ted' the astronaut bear.

Assembly by the Greenwich observatory, learning about planets in a interactive way, providing opportunities for curiosity, to get involved, answer and ask questions.

"Science learning is going well at Broadmead when children are asking high quality scientific questions, enquiring through experiments involving fair testing, looking at patterns and making conclusions"

Year 1 class teacher

SLIDE 6 - CDB – The science curriculum engages, inspires and challenges all children through planned progression in content and procedural knowledge



Example planning slides from Year 5 with scientific enquiry skill – Observing over time

"We measured our heart rate before and after doing different exercises like star jumps and running. I noticed it went up more after the harder ones. We repeated the test to make sure it was accurate and tried to keep everything else the same, like the time we exercises for. That's how we made it a fair test. I think our heart beats fasters to pump more oxygen to our muscles when we move a lot."

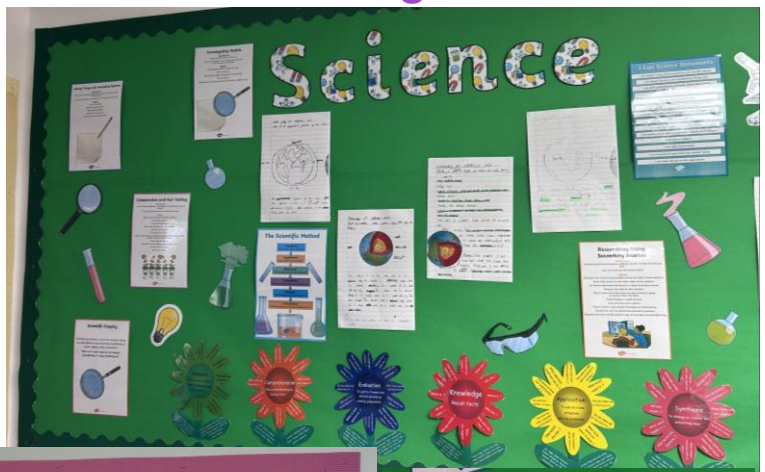
Year 5 pupil

"learning is going well when planning is connected and progression is clear"

Class teacher

"The difference we have seen in children is that they take genuine ownership of scientific investigations, framing their own questions, identifying variables, and designing fair tests rather than simply following instructions. They demonstrate deeper engagement and resilience. As a result, they collaborate more effectively, draw clearer real-world connections, and retain their learning for longer."

- Science leader

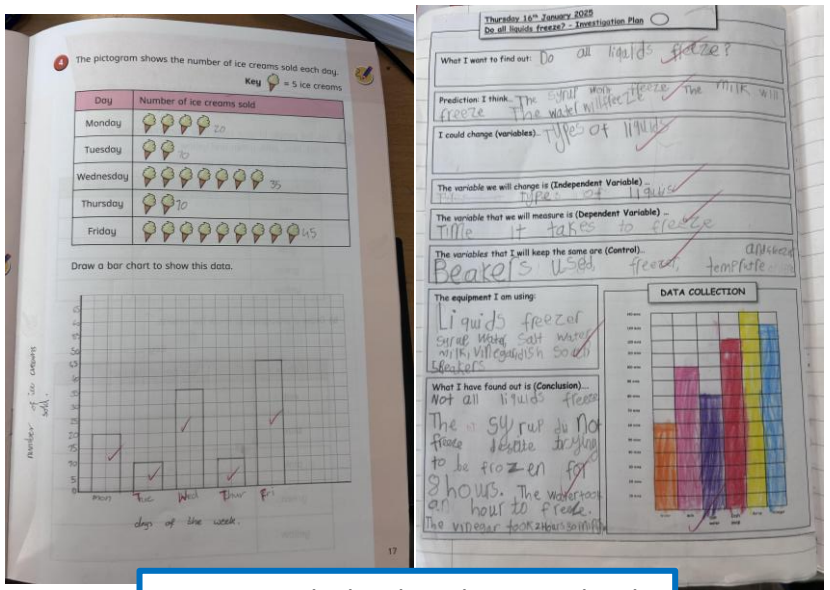


Year 5 and 6 Science display boards with evidence of science enquiry.

SLIDE 7 - CDC - Teaching enables all children to learn science content and procedural knowledge by planning and sharing contexts and skills with other curriculum areas

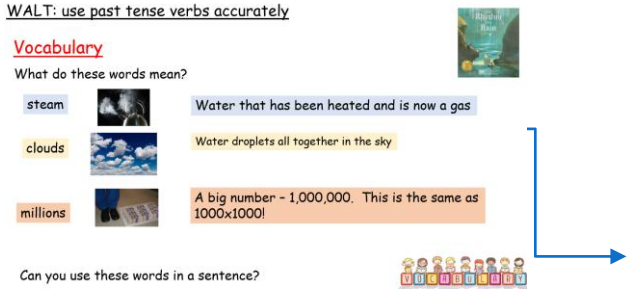
The strategic priorities to develop the principle of ***connecting contexts and skills with other curriculum areas (CDC)*** for our school were:

Because we use prescribed learning questions for our science lessons, we needed to get better and clearer about cross-curricular links looking at common skills and objectives.

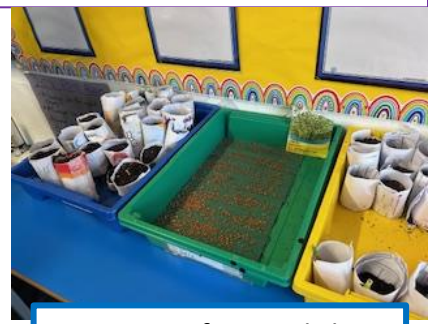


Year 3 Maths book and Science book – drawing bar charts is an essential skill for both subjects in the curriculum

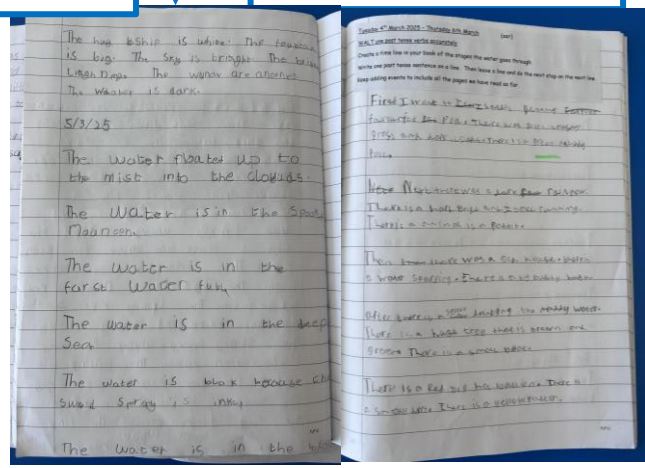
Pupils using beebots in a science lesson, it requires skills from technology and computing lessons to be able to programme and execute, utilising cross curricular skills.



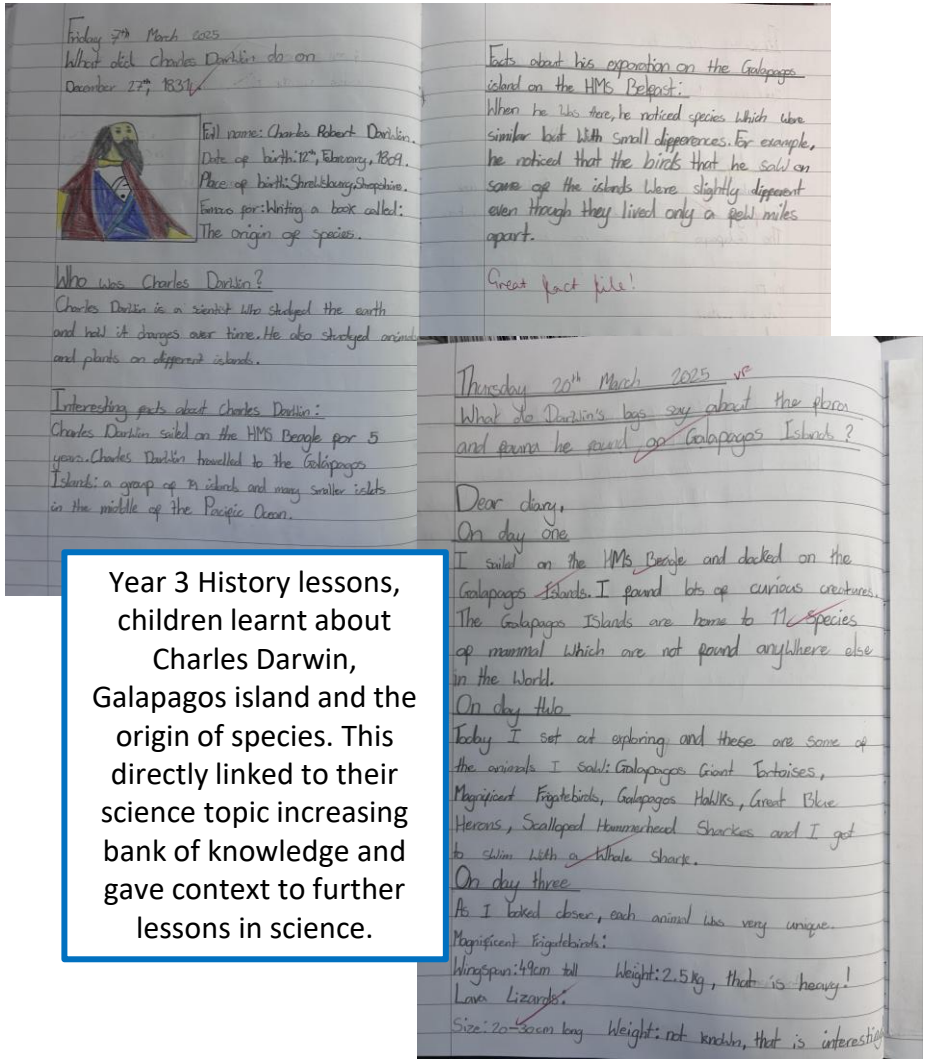
Y2 English topic linked to book 'The Rhythm of the Rain' - using science vocabulary to write narrative in the past tense.



As part of Y2 English, they are growing plants linked to their current book



SLIDE 8 - CDC - Teaching enables all children to learn science content and procedural knowledge by planning and sharing contexts and skills with other curriculum areas



Friday 7th March 2025
What did Charles Darwin do on December 27th, 1831?

Full name: Charles Robert Darwin.
Date of birth: 12th February, 1809.
Place of birth: Shrewsbury, Shropshire.
Famous for: Writing a book called: The origin of species.

Who was Charles Darwin?
Charles Darwin is a scientist who studyed the earth and how it changes over time. He also studyed animals and plants on different islands.

Interesting facts about Charles Darwin:
Charles Darwin sailed on the HMS Beagle for 5 years. Charles Darwin travelled to the Galápagos Islands: a group of 19 islands and many smaller islets in the middle of the Pacific Ocean.

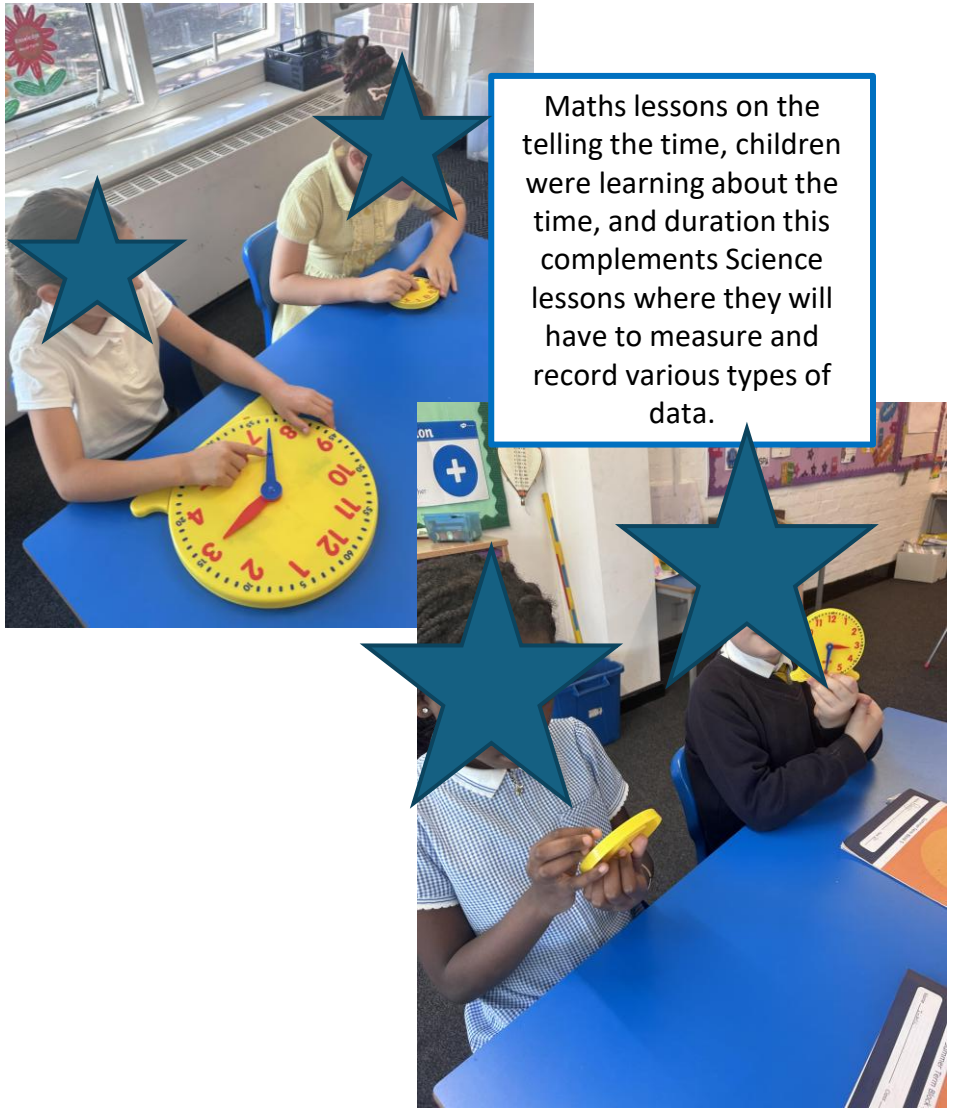
Facts about his expedition on the Galapagos island on the HMS Beagle:
When he was there, he noticed species which were similar but with small differences. For example, he noticed that the birds that he saw on some of the islands were slightly different even though they lived only a few miles apart.

Great fact file!

Thursday 20th March 2025
What do Darwin's logs say about the places and fauna he found on Galapagos Islands?

Dear diary,
On day one
I sailed on the HMS Beagle and docked on the Galapagos Islands. I found lots of curious creatures. The Galapagos Islands are home to 11 species of mammal which are not found anywhere else in the World.
On day two
Today I set out exploring and these are some of the animals I saw: Galapagos Giant Tortoises, Magnificent Frigatebirds, Galapagos Hawks, Great Blue Herons, Scalloped Hammerhead Sharkes and I got to swim with a Whale Shark.
On day three
As I looked closer, each animal was very unique.
Magnificent Frigatebirds:
Wingspan: 49cm tall Weight: 2.5kg, that is heavy!
Lava Lizards:
Size: 20-30cm long Weight: not known, that is interesting

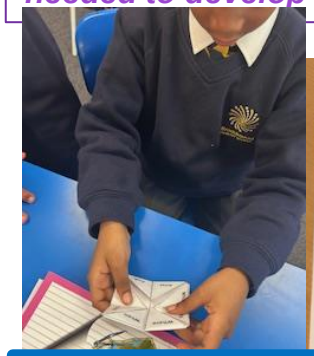
Year 3 History lessons, children learnt about Charles Darwin, Galapagos island and the origin of species. This directly linked to their science topic increasing bank of knowledge and gave context to further lessons in science.

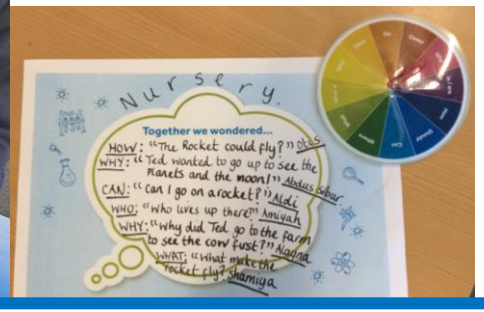


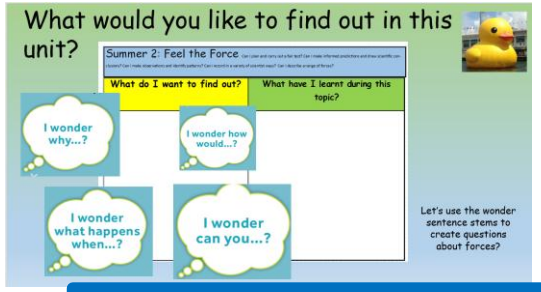
Maths lessons on the telling the time, children were learning about the time, and duration this complements Science lessons where they will have to measure and record various types of data.

SLIDE 9: TLA - Teaching enables all children to learn science content and procedural knowledge by encouraging them to ask questions and express ideas

The strategic priorities to develop the principle of by encouraging them to ask questions and express ideas (TLA) for our school were develop children's ability to ask more well thought out scientific questions and know ways to answer their questions because although children can generate general questions they we needed to develop their scientific vocabulary and questioning skills to be able to ask and answer scientific questions.

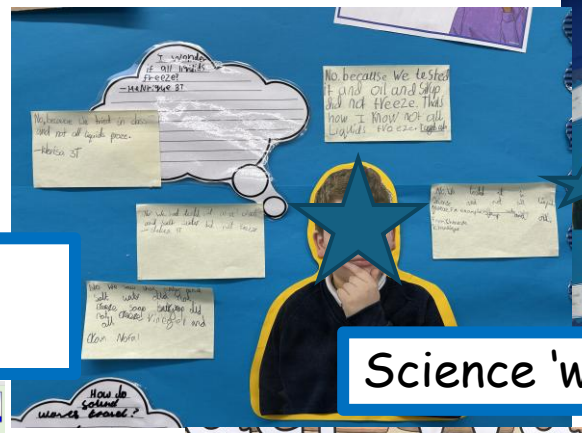




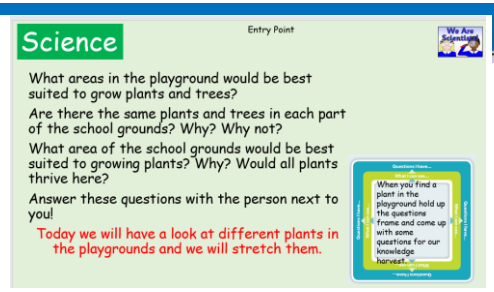


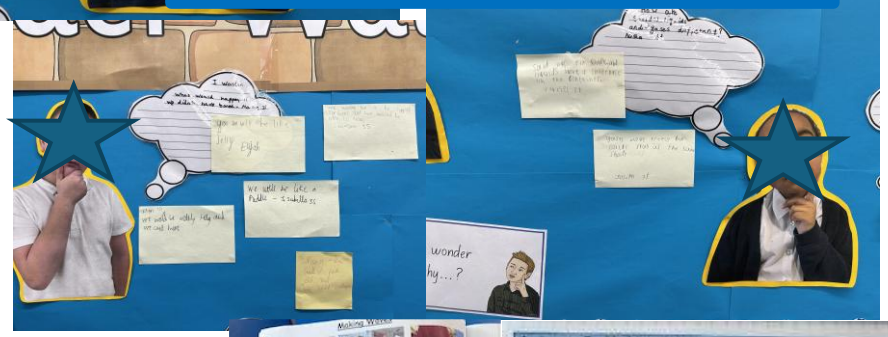
Attended CPD on questioning and executed ideas in the class, introducing staff to strategies, children can now generate more scientific questions using the strategies shared.

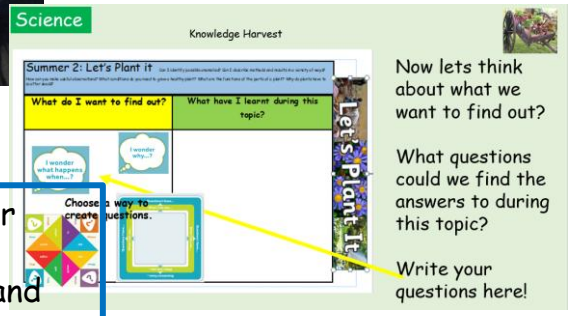
Teachers are now using questioning techniques in lessons and have used icons on their planning slides.



Science 'wonder wall'

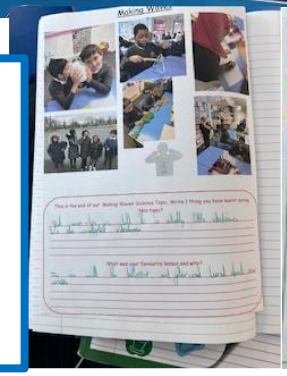


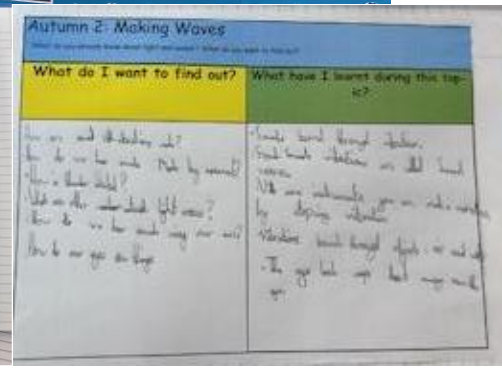




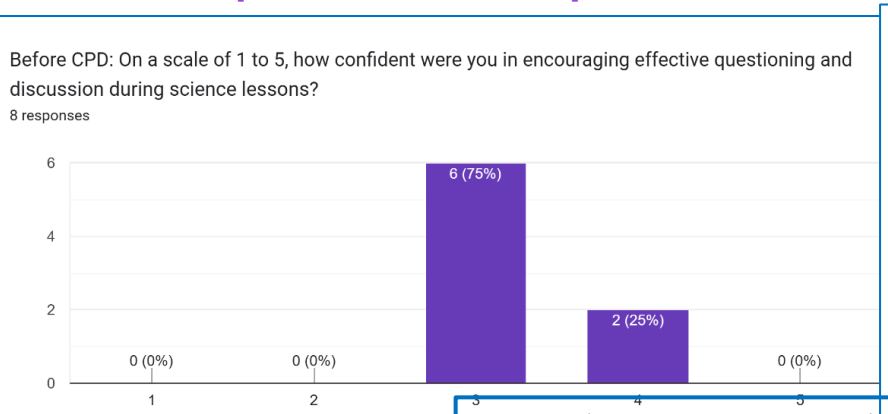
Encouraging children to refine their questions has transformed their learning. They now think critically and explore science with a newfound enthusiasm." Year 5 teacher

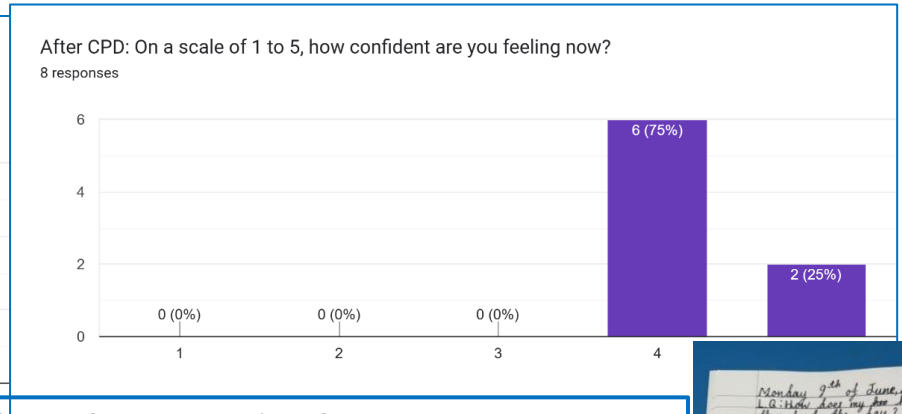
Year 4 Books look show children using various ways to question.





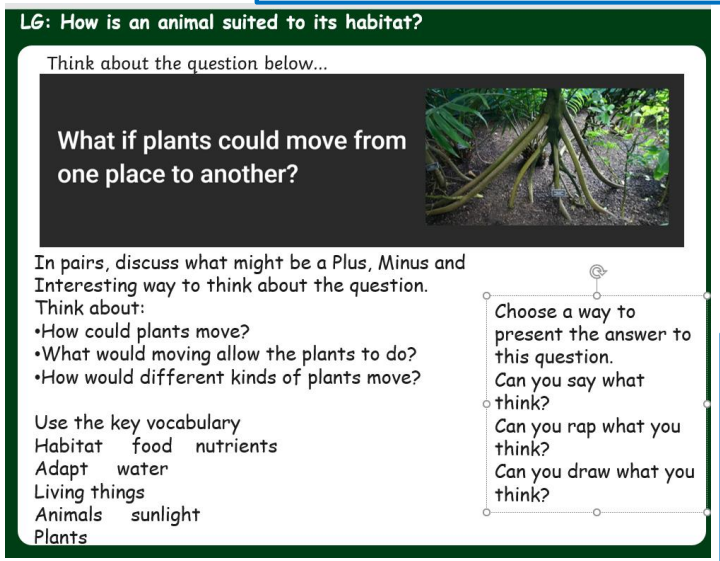
SLIDE 10: TLA - Teaching enables all children to learn science content and procedural knowledge by encouraging them to ask questions and express ideas



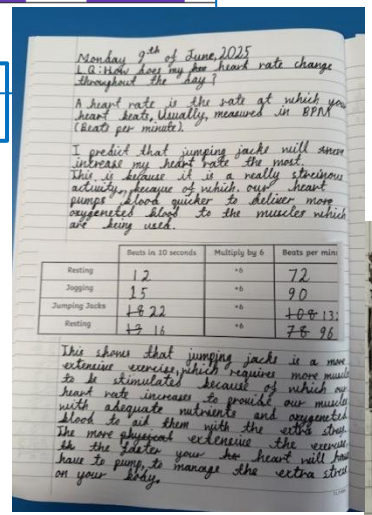


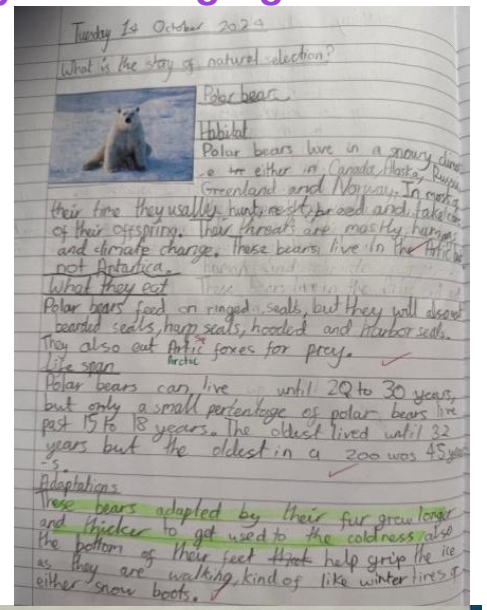
Teacher surveyed before and after CPD

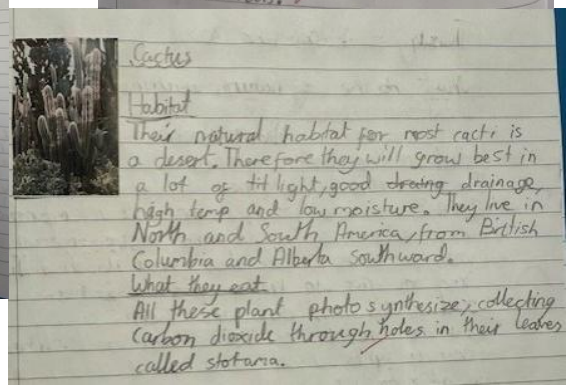
Year 1 and 2 planning using Explorify an oracy tool.



After watching Planning for science enquiry skills I am beginning to explicitly explain which skill we are using in Science lessons this means that the children are beginning to understand the difference between different enquiry skills. Year 1 teacher







Children are now more able to use key vocabulary to not only write definitions but to make predictions and justify there hypothesis.

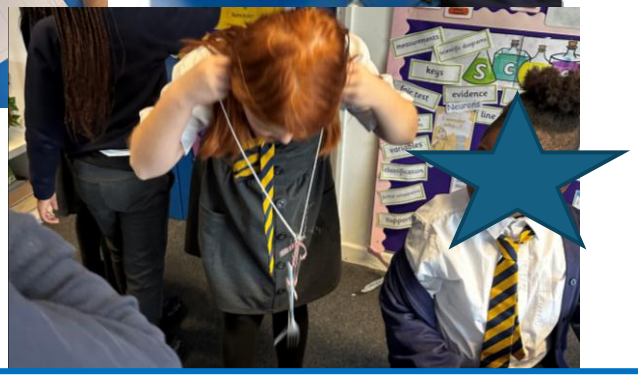
'The process is very interesting and we see that if we change the language in lessons we can bring out the correct vocabulary that's specific to science enquiry.' Year 2 teacher

SLIDE 11 - TLB - Teaching enables all children to learn science content and procedural knowledge by using approaches and resources that enable lesson outcomes to be met

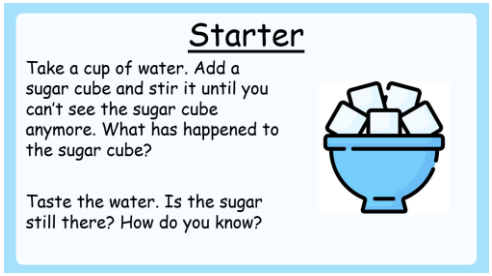
The strategic priorities to develop the principle of by using approaches and resources that enable lesson outcomes to be met (TLB) for our school were to review the investigations/activities currently provided and improve range of lessons (including more experiments) in certain year groups and CPD for teachers showing them HOW to teach with an increased range of enquiry approaches because we have a range of teaching expertise and a fairly new curriculum that has been set for us by the academy we needed to ensure all teachers are confident in what to teach and what strategies can be used.

Year 2 children can now make food chains and webs using the right scientific vocabulary.

children are now exposed to various types of lessons.



"I now have a clearer understanding of how to adapt these enquiry types to different subjects and learner needs" Year 2 teacher



After watching The importance of oracy in science I can now use a wider range of activities to encourage oracy in science this means that the children can now deepen their use of scientific language in lessons. Year 1 teacher

SLIDE 12 - TLB - Teaching enables all children to learn science content and procedural knowledge by using approaches and resources that enable lesson outcomes to be met.

Observations

"*The sounds inside were quieter and muffled.*" – Year 4 Child

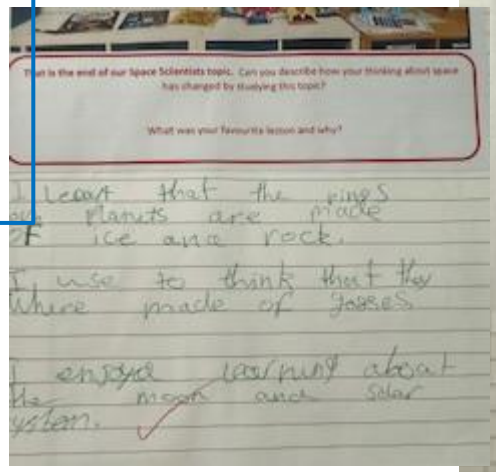
"*The sounds outside were louder and more clear because there was more oxygen for them to pass through.*" – Year 4 Child

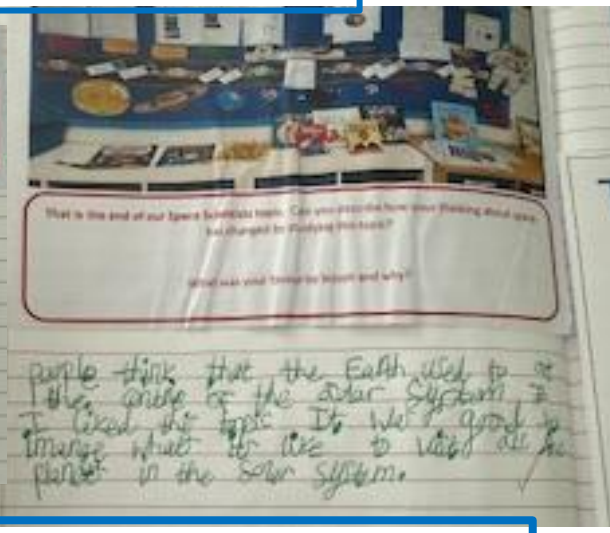
"*When the light was off some of the items in the class glowed.*" – Year 4 Child

"*When the lights where off I could see my fellow classmates when they were closer.*"- Year 4 Child

Children can safely carry out practical work and can make scientific observations and draw conclusions from their finding.

Children are able to articulate their ideas as a result of CPD given to teachers



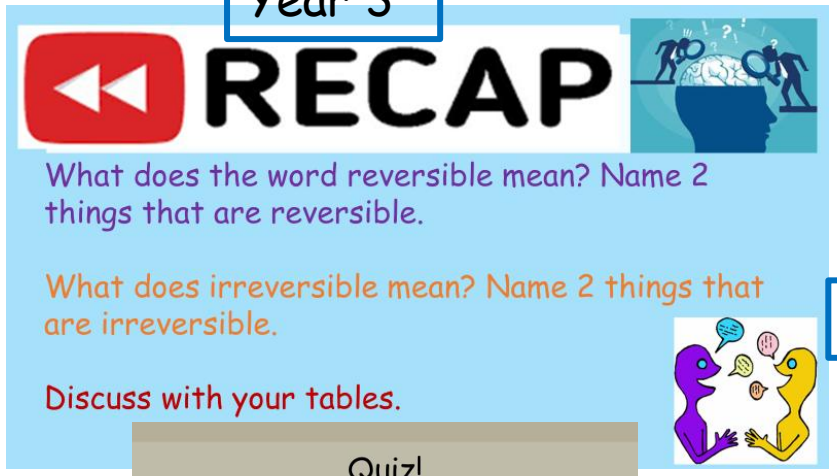


"This science lesson was my favourite it showed me that science isn't just about facts—it's about exploring, imagining, and experimenting." Year 4 child

"It's incredible to see how much more engaged and confident the students are when they collaborate effectively. Year 5 Teacher

SLIDE 13 - TLC - Teaching enables all children to learn science content and procedural knowledge informed by formative and summative assessment

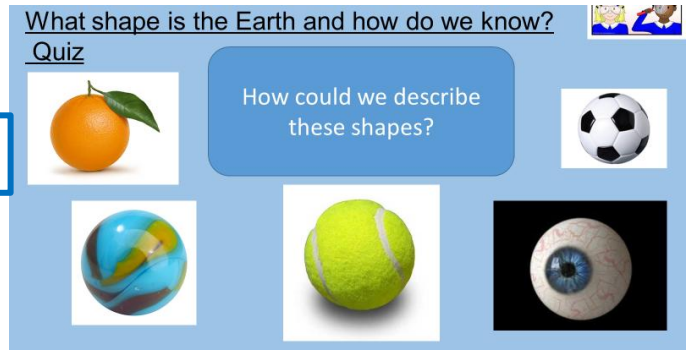
Year 3



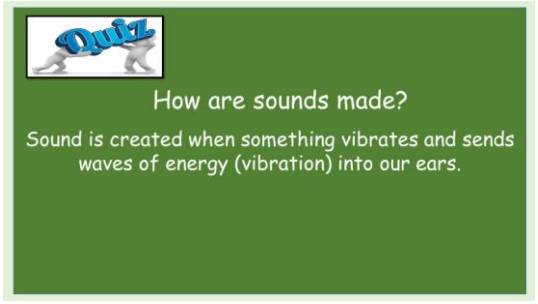
Children can now recall science knowledge more readily and apply this knowledge when working practically.

"Now I can think of my own questions because I can take scientific words from an old lesson and use them in the next lesson." Year 1 child

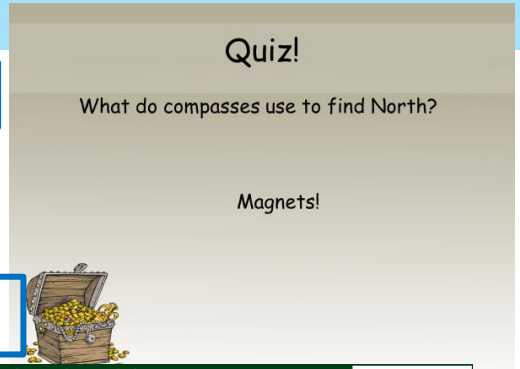
Year 5



Year 4

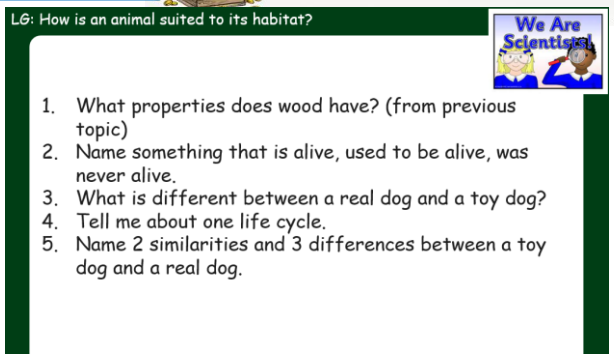


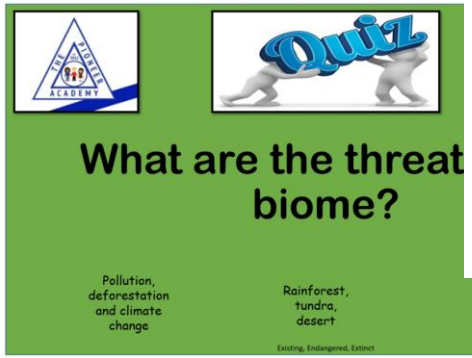
Year 1



Quizzes are used by all year groups as a form of formative assessment.

Year 2



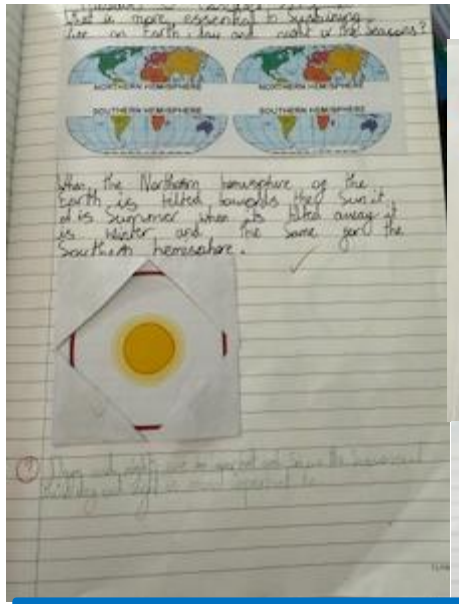


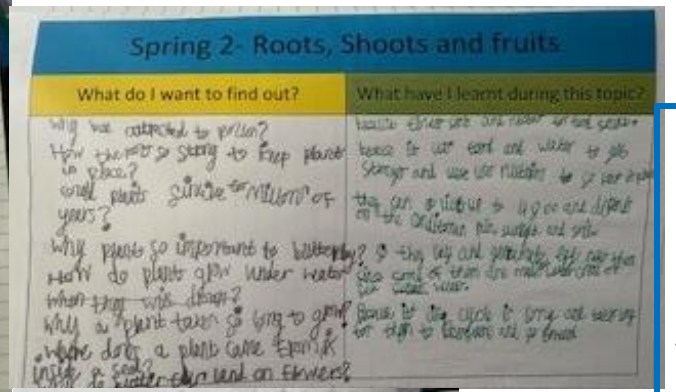
Year 6

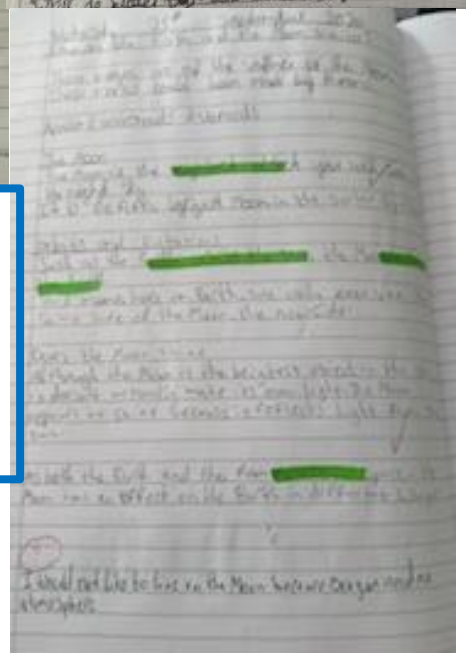
"It's not just about recall—it's about deepening comprehension and guiding the next steps in their scientific journey." Year 4 teacher

The strategic priorities to develop the principle is informed by formative and summative assessment (TLC) for our school were to look at ways to help inform teachers judgement to help capture more accurate assessment of science using formative assessments. Find strategies that can help to adjust teaching based on identified misconceptions because of restrictions within curriculum design, because we use teacher created lesson quizzes but there isn't an consistent way to capture misconceptions or gaps in knowledge currently we needed to introduce strategies that can be easily explained and fit into already well throughout lessons.

SLIDE 14 - TLC - Teaching enables all children to learn science content and procedural knowledge informed by formative and summative assessment

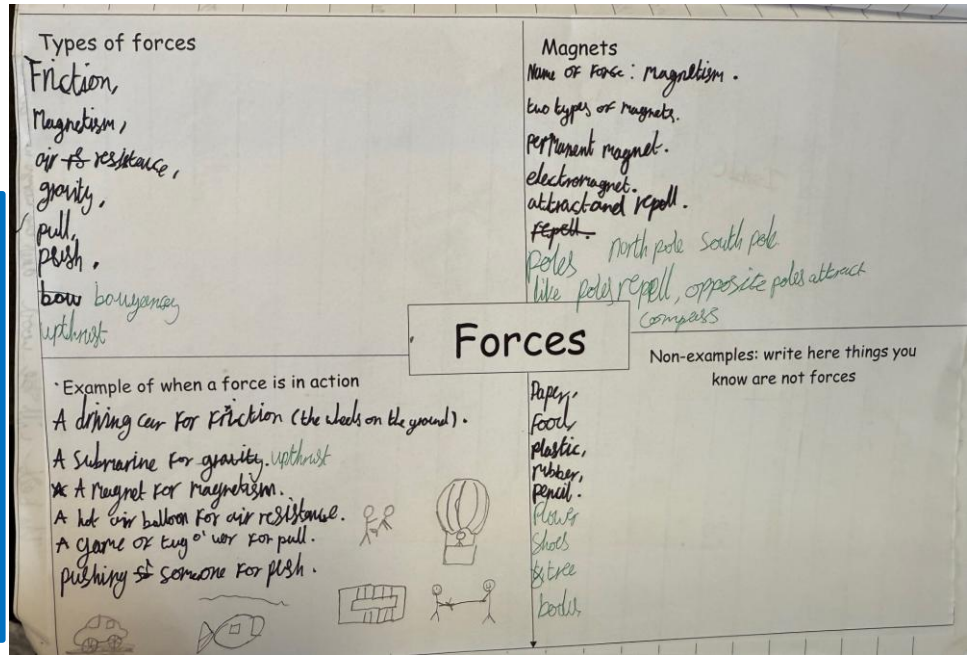


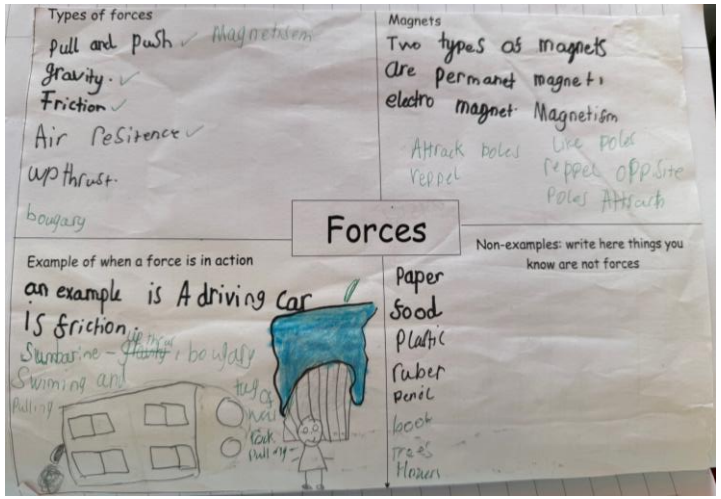


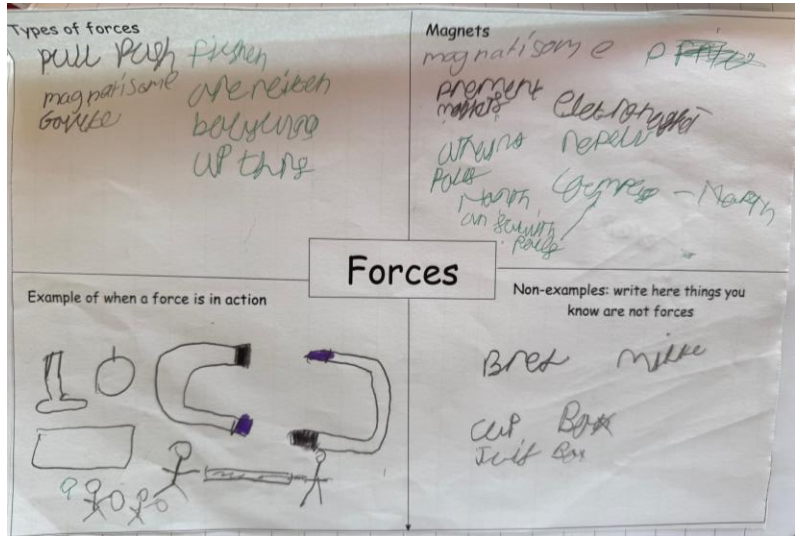


Children are starting to use key vocabulary in there extended pieces if writing and are confident in using different ways to present the information they know.

"Using the Freya framework has really helped me get a clearer picture of what my pupils understand in science. It makes it easier to spot gaps in their thinking and plan lessons that build on what they already know. It's made assessing science feel a lot more manageable and meaningful." Year 4 Teacher







Teachers are now able to pick up on misconceptions and adjust planning and conversations to eradicate misconceptions easily and quickly with the use of these Freya frames. Children are now able to have gaps in knowledge addressed in a timely manner which means they are able to articulate themselves better verballing and this is beginning to translate into the written learning.

PSQM slides:

- Use your existing *Evidence Store* to select from when creating these slides. Add any further evidence from across the school that may not be in your evidence store yet and can also be included to support the statements made in the Science Development Planner (SciDP): Review.
- These slides will form your **Evidence Slides** – a final submission document.
- Required content 14 slides only
  - **Slide 1: school name and brief background**
  - **Slide 2: Vision and Principles**
  - **Slides 3&4 CDA, Slides 5&6 CDB, Slides 7&8 CDC, Slides 9&10 TLA, Slides 11&12 TLB and Slides 13&14 TLC include evidence of impact on children's learning to support SciDP: Review**