Summerfield School

We are a two-form entry primary school situated in Bradwell Common near the centre of Milton Keynes and we are a part of The Blue-Sky Federation, alongside Summerfield School.
It is our intention to develop the whole child, helping them to grow as both lifelong learners and proactive, responsible citizens. To do this successfully, we strive to build meaningful and trusting relationships with our families.

🔑 Key for the PowerPoint

- Starting point.
- During the PSQM journey
- Next steps
- Intend
- Implement
- Impact

SUMMERFIELD SCHOOL SCIENTISTS

At the start, there was limited consistency in the approach to scientific enquiry (SE). While some pockets of SE skills were developed, practice varied across the school. Relevance of Science. Children enjoyed the practical nature of Science and expressed a desire for more frequent opportunities.

Year 1:I want to do more experiments.

Year 4:I like science because we can do experiments

EY: I don't know.

Year6: We don't do enough experiments.

Year 5:I want less writing in Science.

In Summerfield , we love Science.

Year 5 children : We like doing observations and experiments

Year 6 teachers say: The children are engaged and loving Science. Their Scientific questioning skills have improved over the year.

Year 4: It was fun learning about digestive system using our tights and banana. YIKEEESS!!

Year 6 children: I love the practical work in Science.

Year 1: We went on a walk to find insects. I loved finding insects and bugs.

Year 3: I liked learning about rocks using chocolates.

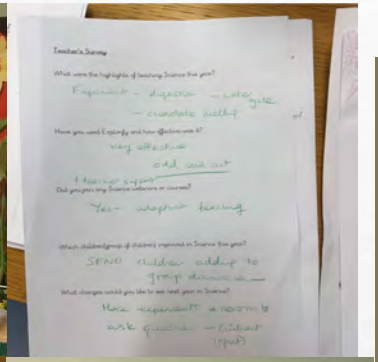
EY : I love looking at plants.

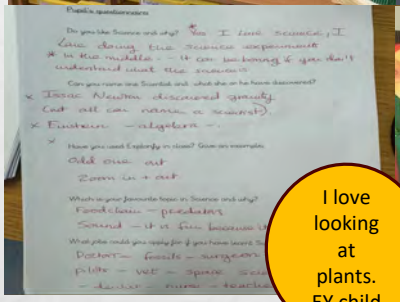
Year 2: We learnt that we need to clean our hands before we eat or else bacteria will get into our stomach. Gross!

During our PSQM journey, we have seen a marked increase in the teaching of scientific enquiry (SE) skills, with both teachers and pupils showing greater confidence in trying new approaches. Children are beginning to ask scientific questions independently

Science day quotes:
EY: I made the plane myself.
Year 1: WOW< WOW, I saw rainbow.
Year 2: I like being a scientist.
Year 3: I was excited to see the bulb glow.
Year 4: We made a straw fly.
Year 5: Making rocket was fun and we talked about the Science behind it.
Year 6: working with younger kids and helping them was fun, while doing the experiments .

Going forward, we will maintain the impact and continue to focus on all enquiry skills throughout a child's school life.





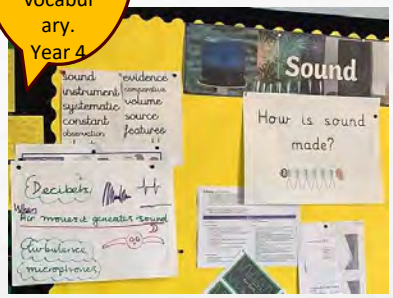
I love looking at plants. EY child

From the outset, teachers were using the Sonar curriculum and planning sequences of science lessons that were engaging and well-intentioned. However, a book scrutiny and OFSTED report highlighted that the progression of learning was not clearly visible, and lessons were not consistently adapted to meet the diverse needs of all learners.

As part of our PSQM accreditation journey, I led staff CPD focused on enriching the teaching of Science through practical and engaging strategies. During this session, I introduced teachers to a range of enjoyable and effective activities to support the teaching of key scientific concepts (Explorify and TAPs). We also revisited and reflected on our new Science Vision, ensuring that it underpins all aspects of our curriculum delivery.

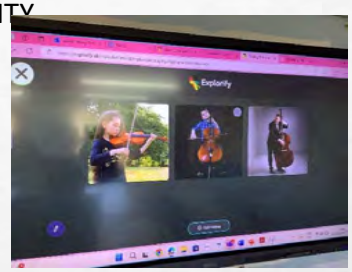
NEXT STEPS:As part of this, we will create a simple school-wide template or guidance document for cold tasks, supported by examples of best practice. This will be accompanied by further CPD and peer sharing opportunities so that staff feel confident and supported. We will also continue to monitor the impact of cold tasks through book looks, pupil voice, and planning reviews to ensure they are effectively supporting all learners. Particularly those with SEND or Pupil Premium children —this will be done by informing responsive, inclusive and adaptive teaching.

I know where to find the new Science vocabulary. Year 4



A dedicated vocabulary wall displays key scientific terms relevant to current topics. It provides visual support to reinforce correct usage, encourages pupils to incorporate new words in discussion and writing, and helps build subject-specific language confidence across all year groups.

SLIDE 3 - CDA – THE SCIENCE CURRICULUM ENGAGES, INSPIRES AND CHALLENGES ALL CHILDREN BY PROMOTING INCLUSION AND EQUITY



Year 5 child- I love when we use explorify. It is exciting. I love the zoom in, zoom out.

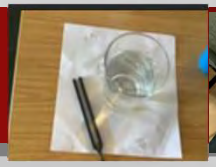
<u>Use of Explorify to Support Diverse Learners:</u>
Explorify resources engage all types of learners, particularly visual and kinesthetic pupils, through interactive activities and stimulating visuals. This approach encourages curiosity, discussion, and hands-on exploration, making science accessible and enjoyable for every learner.

INTEND
All children should develop a sense of excitement and curiosity about natural phenomena.

IMPLEMENT
We have implemented a consistent and clear learning journey—including initial assessments (cold task and a unit baseline) to establish starting points for each child, a sequenced series of lessons, and opportunities to assess both substantive knowledge and disciplinary understanding, alongside the use of key scientific vocabulary.

IMPACT
We are beginning to have Scientists who are curious about the world around them and want to learn Science and who have a strong knowledge, understanding and developing Scientific enquiry skills.

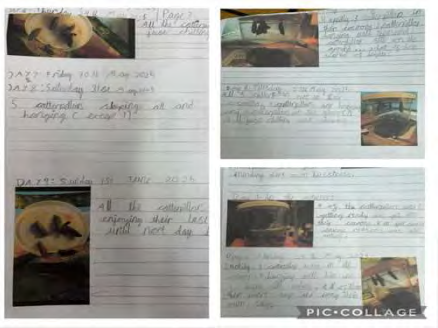
Use of cross curricular links(music) to support learning topics like Sound.



CDA – THE SCIENCE CURRICULUM ENGAGES, INSPIRES AND CHALLENGES ALL CHILDREN BY PROMOTING INCLUSION AND EQUITY

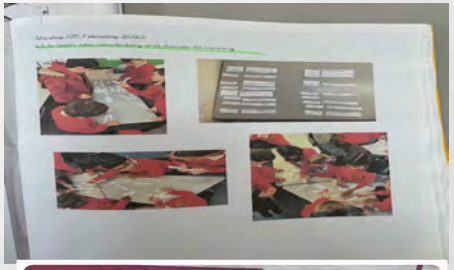
Pictures help me remember the word. SEN child

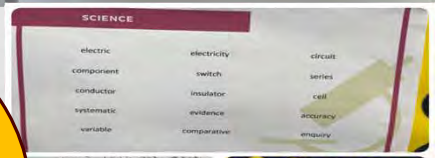
Learning About Changing States of Matter Using Chocolate:
Children explored melting and solidifying by observing chocolate as it changed state. This hands-on activity made abstract concepts tangible, helping all pupils understand physical changes through a familiar, enjoyable context.

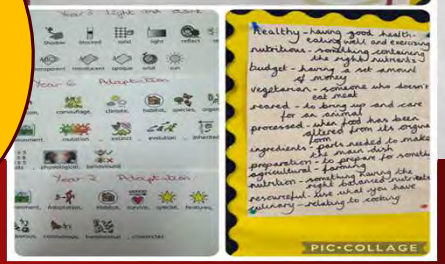


Year 5 learned about the life cycle of a butterfly by observing and recording the different stages of growth. This hands-on approach helped deepen their understanding of biological processes and supported development of scientific observation and recording skills.

Scientific Vocabulary Across the School:
Every year group displays key scientific vocabulary on their working walls to support ongoing language development. To ensure accessibility for all learners, including those with additional needs, tools like widgets are used to provide visual and interactive support. Some children are pre-taught vocabulary before starting a new topic, helping to build confidence and inclusion from the outset. Additionally, at the beginning of each topic, pupils participate in a word hunt activity where they match scientific terms with their meanings, reinforcing understanding and engagement with new language.





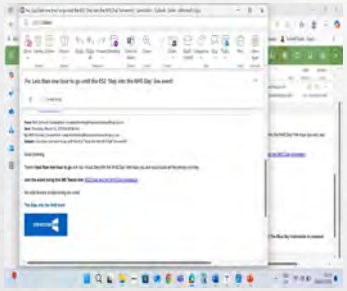


SQUIRRELS CLASS (SEND) :
WE EXPLORE SCIENCE THROUGH PLAY, USING HANDS-ON ACTIVITIES TAILORED TO OUR NEEDS. RECENTLY, WE LEARNED ABOUT CHEMICAL REACTIONS BY MIXING DIFFERENT SOLUTIONS, OBSERVING THE CHANGES, AND ENJOYING A FUN, SENSORY EXPERIENCE THAT SUPPORTED OUR UNDERSTANDING.

Squirrels class teacher-
The children have really enjoyed the practical experiments that we have been doing. It has been great to see them all accessing the same learning.

CDA – THE SCIENCE CURRICULUM ENGAGES, INSPIRES AND CHALLENGES ALL CHILDREN BY PROMOTING INCLUSION AND EQUITY

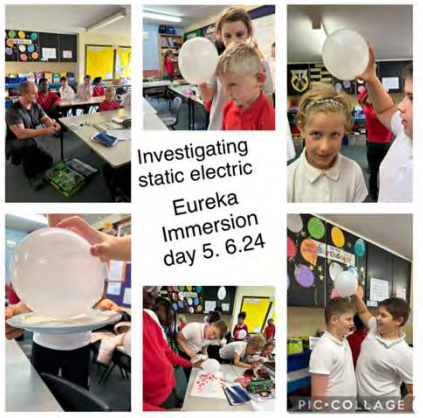
Our Science Day was a great success, giving every child the chance to collaborate across year groups to explore, observe, and learn about the world around them. We enrich our curriculum by organising trips, visits, and welcoming expert visitors. This helps make Science learning exciting, inclusive, and relevant for all pupils.



Science day was fun as we got to do lots of experimen ts. Year 1

*can be tricky **trickier ***will need support	1	2	3	4	5	6	7
Sharks and Dolphins	Umar** Toby Layla Jagoda Blessing Keisha Joseph	Murash** Rhys Meila Kysha Rory*** Abigail Sultan	Daniyal** Ezekiel Amelia Hafsa Kalium*** John Janee	Jarryd** David Faith Mason Nidish Alex Anaya Ronnie	Khylan * Arjun Michelle Azra Kritszain Sarim Harvey Fabian	Rio Casey Sohail Nicole* Aizah Khesmik Olivia Fawaz	Mohammed* Abiram Siddhiksha Alisha Tiana Angie Nikita
Dolphins							
Owls	Hanna Avannah Jacob Oliver	Alima Divina Jed* Akeila	Neve Daniel D * Daniel A* Mitchell	Melanie Reggie Bastian Saifan	Tom * Lana Cassi Katie	Flavius ** Sarah Emily	Reyes ** Haisum Julia
Eagles	Paisley ** Divia Burhan Armaghaan	George ** Eddie Amber	Stacy Elsie Finley	Ethan * Alishba Kanzul	Omar Jesse Holly	Bhashvin Ati Jonelle Naomi	Luqman Desmond Esther Olivia
Otters	Maryam Shayla Fiza	Evie Vivaan Fredrica** Brianna** (both need support)	Michael Rishika Elisha Yvette	Boubacar Alina Shamsher**	Tess* (support) Nikolas Amelia	Shaurya Haris * Tony * (no English) George	Giorgia* (support) Aashvi Desmond Skylar* (support)
Badgers	George Aisha Aiden * Hazel	Dharmik * Emilia Adam *	Tilly * Rehet Tobey	Alvin * Beatrice Navya Hadi	Praise*** Tia Ramona	Daisy Chloe Ella Rose **	Rhys * Aliza Bhavagna

We begin every science topic with an immersion day to spark curiosity and engagement. For example, Year 4 kicked off their 'Eureka' topic by dressing up as mad scientists, creating an exciting and memorable start to their electricity learning journey.



KS2 enjoyed an informative assembly led by a visiting optician.

On 13th March, to boost our Science Capital, all year groups participated in a whole day dedicated to NHS staff. Pupils had the opportunity to engage directly by asking questions to the speakers, this helped to deepen their understanding of real-world science and healthcare careers.

STEP INTO THE NHS

Science Day timetable

CDB – THE SCIENCE CURRICULUM ENGAGES, INSPIRES AND CHALLENGES ALL CHILDREN THROUGH PLANNED PROGRESSION IN CONTENT AND PROCEDURAL KNOWLEDGE

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Making observations	Make observations and draw pictures of animals and plants.	Start to observe closely	Observe closely	Develop skills of systematic observation	Make systematic observations	Independently decide which observations to make	
Perform tests	Able to wait and control impulse.	Perform simple tests with support	Perform simple tests	Set up simple practical enquiries Understand comparative and fair tests	Suggest, set up and carry out simple practical enquires Understand comparative and fair tests	Recognise and control variables where necessary	Recognise and control variables where necessary Explain which variables need to be controlled and why
Ask questions	Listen attentively and respond to what they hear with questions	Start to ask and suggest answers to simple scientific questions Use first-hand practical experiences to find answers	Ask and raise their own scientific questions Use first-hand practical experiences to find answers	Ask relevant scientific questions and suggest how to answer Develop different types of scientific enquiry	Generate and answer scientific questions using evidence Select most appropriate type of scientific enquiry	Use science experiences to plan different types of enquiry	Plan different types of scientific enquiry in order to answer questions. Use science experiences to explore ideas and raise different types of question
Gather data		Begin to gather and record data simply using pictures and words	Gather and record data	Gather, record and present data in variety of ways. Report on findings orally and in writing using scientific language	Gather, record, classify and present data in a wide variety of ways. Report on findings orally and in writing using scientific language to answer questions	Record data/results of increasing complexity Report and present findings from enquiries, examining causal relationships and reliability of results	Decide how to record data/results of increasing complexity Report and present findings from enquiries, examining causal relationships and reliability of results
Analyse Data		Start to discuss what they have found out	Discuss what they have found out	Use results to draw simple conclusions and make predictions Identify similarities, differences, changes related to scientific processes and ideas.	Use results to draw simple conclusions, make predictions, suggest improvements and raise further questions Explain similarities, differences, changes related to scientific processes and ideas	Use test results to make predictions to set up further tests (comparative/fair) Identify scientific evidence that has been used to support/refute arguments	Use test results to make predictions to set up further tests (comparative/fair) and explain reasoning Interpret scientific evidence that has been used to support/refute arguments
Use equipment	Explore the world around them.	Begin to use simple equipment	Use simple equipment	Use range of equipment to measure accurately	Confidently use range of equipment to measure accurately	Take measurements using a range of scientific equipment with accuracy and precision	Take measurements using a range of scientific equipment with accuracy and precision, taking repeat readings where appropriate

As a school, we follow the Sonar Curriculum, which ensures a consistent progression of skills and knowledge across year groups. The curriculum provides a clear progression of objectives and topics to be taught, with explicit links to the National Curriculum. All teachers use this overview as the foundation for planning their lessons. To maintain the quality and progression of Science throughout the school, we conduct termly monitoring through lesson plan reviews, book scrutinies, and gathering pupil voices. This ongoing evaluation supports continuous improvement and ensures that teaching remains aligned with our curriculum goals.

A progression chart has clearly show us the learning journey of Science before children come to us. This helps with planning and to know what is already covered. Year 6 teacher

Intent:
The Summerfield Scientist is equipped with the skills to work scientifically and can communicate their findings in a variety of ways. They are curious about scientific processes.
They can apply a range of scientific enquiry techniques. The Summerfield Scientist not only understands the Science covered in the classroom but can make links with the outside world.
They can make connections across and between different curriculum areas and have a secure understanding of the content covered.
The children should develop a sense of excitement and curiosity about natural phenomena.

Implement:
Why are we teaching Science and Scientific concepts? What disciplinary and scientific knowledge do we need to know?
We have implemented this by planning a clear learning journey. (Assessment (A cold task helps teachers know the starting point for each child), recapping previous and learning new Scientific vocabulary, a sequence of lessons, including Scientific enquiry skills and assessing the children's knowledge and understanding).

- Cold task- chocolate bar (what you know and questions you want to ask) / previous year quiz
- Quiz /assessment – same start and end
- Knowledge organiser
- Lesson on scientific vocabulary (vocabulary clearly displayed on WW)
- Clear learning sequence including a variety of evidence (photos, diagrams, written work, tables, graphs, etc)
- Scientific enquiry (SE) evidence/use the same Performa /Formative assessment.
- End of unit assessment/Formative and summative (use TAPS (Teacher assessment in Primary Science) to assess SE skills).

Impact:
We will have Scientists who are curious about the world around them and have a strong knowledge and understanding of different areas of Science. They will be developing are range of Scientific enquiry skills.
We will be able to promote a love and enthusiasm for learning Science and every child will make progress during their time in Summerfield.

We are currently in the third cycle of using the Sonar curriculum, and we have observed clear progression in both content knowledge and procedural knowledge taught.

During the PSQM journey, I was able to focus on one area at a time and select a specific aspect to develop. I was given time to conduct book looks, gather pupils' voices, and collect teachers' feedback. Evidence for this was submitted in Module 1 as part of the school CPD. Notably, pupils' and teachers' voices clearly show that educators have actively used Explorify, invested in building vocabulary, and implemented a question wall. Children have especially enjoyed using Explorify and learning about a variety of scientists.

Next steps:
Looking ahead, the next step is to become more precise in our adaptive teaching practices. By tailoring learning experiences more closely to individual pupil needs, we can ensure that all learners are appropriately challenged and supported. This will involve using ongoing assessment data to inform differentiated tasks and providing targeted scaffolding to maximise progress for every child. Strengthening adaptive teaching will further enhance the impact of our curriculum and foster deeper scientific thinking.

Year 2 teacher-
We all use the sonar curriculum, so there is a clear progression throughout the school. The children are able to build on their previous knowledge.

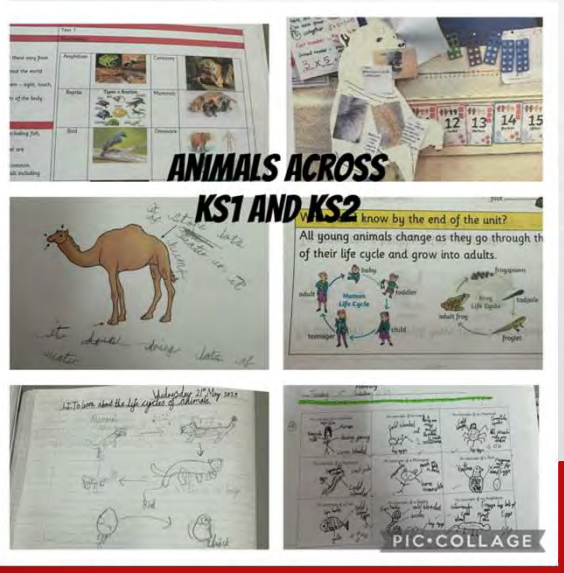
CDB – THE SCIENCE CURRICULUM ENGAGES, INSPIRES AND CHALLENGES ALL CHILDREN THROUGH PLANNED PROGRESSION IN CONTENT AND PROCEDURAL KNOWLEDGE.

Intend: They can apply a range of scientific enquiry techniques. The Summerfield Scientist not only understands the science covered in the classroom but can make links with the outside world.

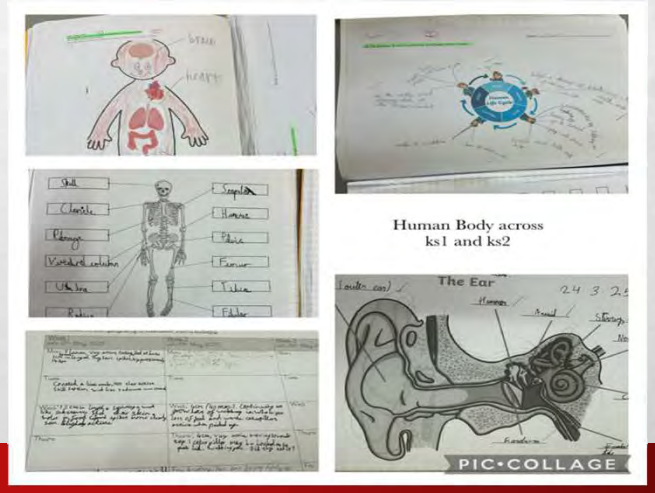
Year 4 child-
Science helps us explore, discover and learn exciting things about the world through fun experiements!

Impact:
We will have Scientists who are curious about the world around them and have a strong knowledge and understanding of different areas in Science. They will develop their Scientific enquiry skills through hands on practice.

A KEY STRAND THAT RUNS CONSISTENTLY THROUGH THE SCHOOL CURRICULUM IS 'ANIMALS, INCLUDING HUMANS.' THERE IS A CLEAR AND WELL-STRUCTURED PROGRESSION IN THIS TOPIC FROM YEAR 1 THROUGH TO YEAR 6, BUILDING KNOWLEDGE AND SKILLS YEAR-ON-YEAR TO DEEPEN STUDENTS' UNDERSTANDING.

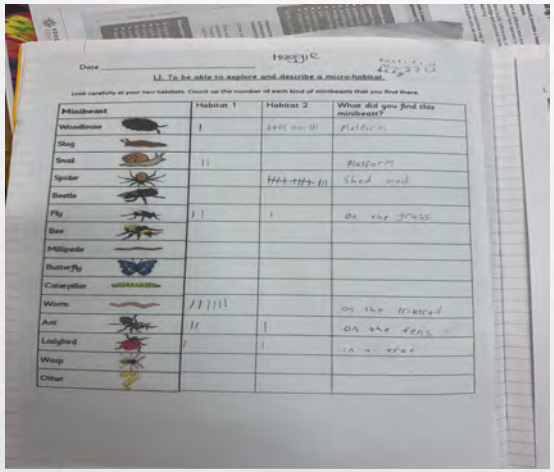


BOOK SCRUTINIES AND LESSON PLANS STORED ON THE SERVER DEMONSTRATE CLEAR PROGRESSION IN BOTH CONTENT AND PROCEDURAL KNOWLEDGE. ACROSS ALL OUR SCIENCE BOOKS, THERE IS AN EVIDENT LEARNING JOURNEY: STARTING WITH A COLD TASK TO ASSESS PRIOR KNOWLEDGE, FOLLOWED BY A SERIES OF LESSONS DELIVERED BY THE TEACHER, AND CONCLUDING WITH AN END-OF-UNIT ASSESSMENT TO EVALUATE EACH CHILD'S LEARNING OUTCOMES.



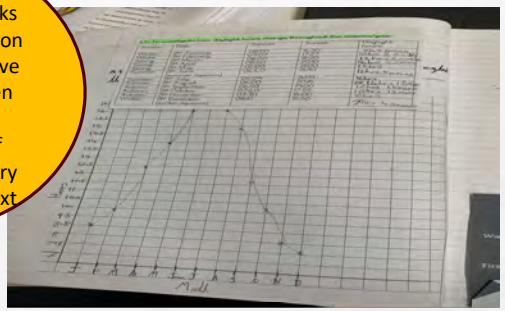
Implement:
We have implemented this by planning a clear learning journey. (Assessment (A cold task helps teachers know the starting point for each child), recapping previous and learning new Scientific vocabulary, a sequence of lessons, including Scientific enquiry skills and assessing the children's knowledge and understanding).

CDC - TEACHING ENABLES ALL CHILDREN TO LEARN SCIENCE CONTENT AND PROCEDURAL KNOWLEDGE BY PLANNING AND SHARING CONTEXTS AND SKILLS WITH OTHER CURRICULUM AREAS



In Year 2, pupils have applied their Maths skills to calculate the most popular insect, reinforcing their understanding of statistics while deepening their scientific knowledge of insects.

Year 6 class teacher- Cross curriculm links (e.g. using non-fiction texts in English) have helped the children to develop the understanding of Scientific vocabulary in a different context



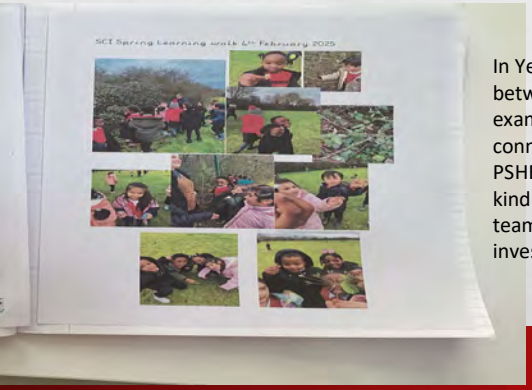
In Year 5, pupils have applied their Maths skills in interpreting line graphs to determine which month has the longest days. This has helped to integrate their understanding of data analysis with scientific concepts of daylight and seasons.

INTENT: Our intent is for pupils to make meaningful connections across different curriculum areas and develop a secure understanding of the content covered.

IMPLEMENT: We have implemented this by ensuring Teachers explicitly link different curriculum areas wherever possible and actively draw pupils' attention to these co

IMPACT:
At our school, children are beginning to recognise how skills from other curriculum areas link together and are starting to transfer these to their learning in Science.

In DT, Year 2 designed and built the own rockets. They tested each one to see what factors effected how high the rocket flew (how much water was in the bottle, the shape of the nose, the size of the wings).

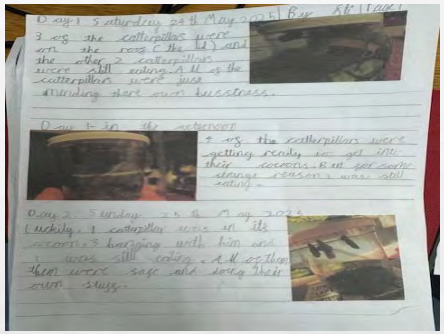


In Year 1, there are strong cross-curricular links between Science, PSHE, and Geography. For example, the Science topic of seasonal changes connects directly with Geography learning, while PSHE themes such as working together and being kind support the development of social skills and teamwork, which enhance collaborative scientific investigations and discussions.

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

'That's a great lineup of scientists for the reading comprehension booklets! It's excellent that you're introducing children at different year groups to such important figures from science history. Each one has a fascinating story that can inspire curiosity and learning'.

Year 5 pupils observed and recorded butterfly metamorphosis, measuring growth and tracking time through writing diary entries that develop their data collection and mathematical reasoning skills.

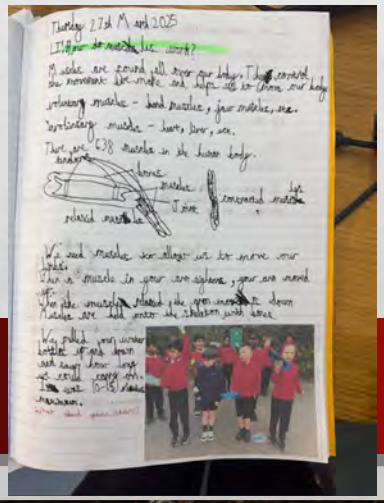


Intend: They can make meaningful connections across and between different curriculum areas, demonstrating a secure understanding of the content covered.

The next step will be to introduce a Science cupboard in the playground, providing children with opportunities to observe, play, and discover freely.

Year 4 have been finding cross curricular links between sound and music. They loved the drum and the rice experiment.

Year 4: We loved making music using rice grains on a drum. Fun times.



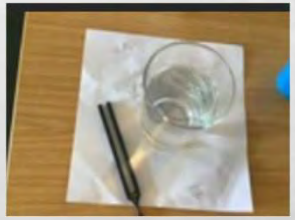
Implement:
We have implemented this by ensuring that at every opportunity teachers get they make explicit connections with other subject areas. Teachers will focus on the scientific skills or questions elicit the connection between subject areas.

Year 3 have been learning about muscles through exercise during PE lessons.

Teachers at Summerfield School have also demonstrated strong practice in making effective cross-curricular links.

During the PSQM journey, teachers increasingly discussed the wide range of careers children could pursue by studying Science. Explorify proved to be a valuable tool in helping teachers make meaningful cross-curricular links, enriching both Science learning and related subjects.

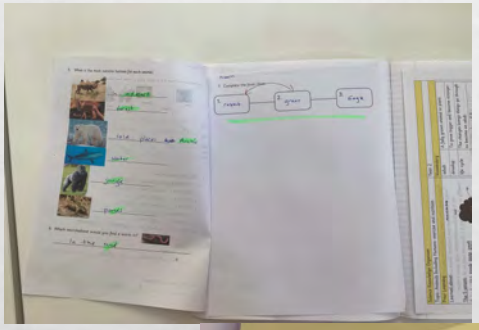
Impact
At our school, children are increasingly recognising the relevance of skills from other curriculum areas to their Science learning. This growing awareness helps them make meaningful connections, deepen their understanding, and apply knowledge across subjects more confidently.

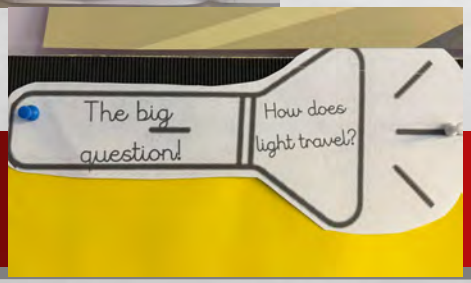


TLA - TEACHING ENABLES ALL CHILDREN TO LEARN SCIENCE CONTENT AND PROCEDURAL KNOWLEDGE BY ENCOURAGING THEM TO ASK QUESTIONS AND EXPRESS IDEAS.

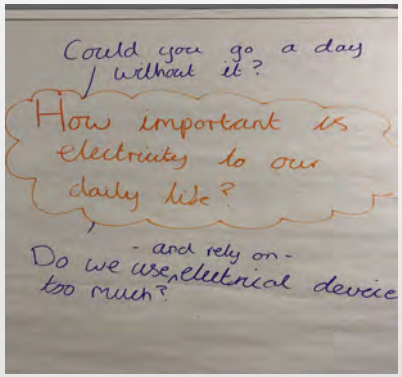
INTEND:THEY CAN APPLY A RANGE OF SCIENTIFIC ENQUIRY TECHNIQUES. THE SUMMERFIELD SCIENTIST NOT ONLY UNDERSTANDS THE SCIENCE COVERED IN THE CLASSROOM BUT CAN MAKE LINKS WITH THE OUTSIDE WORLD.
IMPLEMENT: BY PLANNING A CLEAR LEARNING JOURNEY. (ASSESSMENT (COLD TASK HELPS WITH THE STARTING POINT FOR EACH CHILD), SERIES OF LESSONS TO BE TAUGHT, INCLUDE SCIENTIFIC ENQUIRY SKILLS, ASSESS KNOWLEDGE, UNDERSTANDING AND DISCIPLINARY KNOWLEDGE, SCIENTIFIC VOCABULARY)
IMPACT: WE WILL HAVE SCIENTISTS WHO ARE CURIOUS ABOUT THE WORLD AROUND THEM AND HAVE A STRONG KNOWLEDGE AND UNDERSTANDING AND DEVELOPED GOOD SCIENTIFIC ENQUIRY SKILLS.

THE YEAR 2 CURRICULUM'S EMPHASIS ON HABITATS OFFERS A CRUCIAL FOUNDATION FOR UNDERSTANDING ECOLOGICAL RELATIONSHIPS. INVESTIGATING THE INTERACTIONS BETWEEN ANIMALS, PLANTS (FLORA), AND OTHER LIVING ORGANISMS (FAUNA) WITHIN THEIR NATURAL ENVIRONMENTS PROMOTES EARLY ENVIRONMENTAL AWARENESS AND SCIENTIFIC LITERACY.





THIS APPROACH FOR YEAR 6, WHICH INTEGRATES SCIENTIFIC INQUIRY WITH STRUCTURED DEBATE, EFFECTIVELY PROMOTES THE DEVELOPMENT OF CRITICAL THINKING, COMMUNICATION, AND REASONING SKILLS ALONGSIDE THE ACQUISITION OF SCIENTIFIC KNOWLEDG**E.**



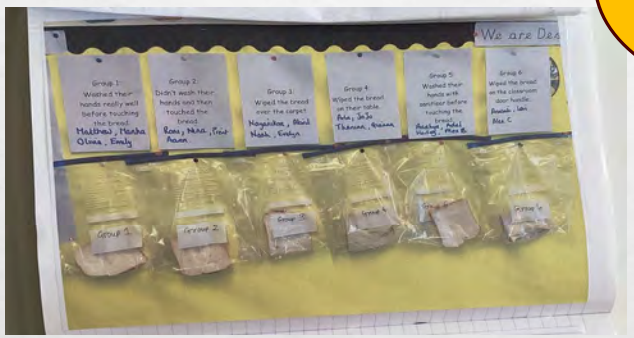
In Year 3, each topic begins with the formulation of a scientific question, which students investigate and answer throughout their learning journey.

Early Years children learn through curiosity and inquiry. In this context, they were encouraged to pose scientific questions about plants, adopting the role of young detectives as they explored and investigated.

TLA - TEACHING ENABLES ALL CHILDREN TO LEARN SCIENCE CONTENT AND PROCEDURAL KNOWLEDGE BY ENCOURAGING THEM TO ASK QUESTIONS AND EXPRESS IDEAS

INTEND:THEY CAN APPLY A RANGE OF SCIENTIFIC ENQUIRY TECHNIQUES. THE SUMMERFIELD SCIENTIST NOT ONLY UNDERSTANDS THE SCIENCE COVERED IN THE CLASSROOM BUT CAN MAKE LINKS WITH THE OUTSIDE WORLD.
IMPLEMENT: BY PLANNING A CLEAR LEARNING JOURNEY.(ASSESSMENT(COLD TASK HELPS WITH THE STARTING POINT FOR EACH CHILD), SERIES OF LESSONS TO BE TAUGHT, INCLUDE SCIENTIFIC ENQUIRY SKILLS, ASSESS KNOWLEDGE, UNDERSTANDING AND DISCIPLINARY KNOWLEDGE, SCIENTIFIC VOCABULARY)
IMPACT: WE WILL HAVE SCIENTISTS WHO ARE CURIOUS ABOUT THE WORLD AROUND THEM AND HAVE A STRONG KNOWLEDGE, UNDERSTANDING AND SCIENTIFIC ENQUIRY SKILLS.

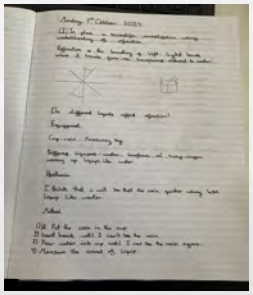
YEAR 2 LEARNT THE IMPORTANCE OF HYGIENE AND HOW IMPORTANT IT IS TO WASH THEIR HANDS BEFORE EATING THEIR FOOD. THEY LEARNT THE DIFFERENT FOOD GROUPS AND THE IMPORTANCE OF HEALTHY EATING AND LIFESTYLE.



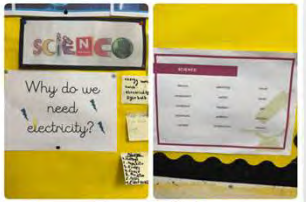
Year 2 chid-
We have done some Science experiments. The bread experiment was my favourite. I was gross! I always wash my hands before eating and after being outside.

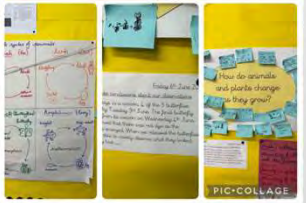
Next steps:
Questioning and vocabulary walls have worked very well and need to be continued beyond this curriculum year.

YEAR 6 INDEPENDENTLY FORMULATED A SCIENTIFIC QUESTION AND USED THEIR ENQUIRY SKILLS TO PLAN, CARRY OUT, AND EVALUATE AN INVESTIGATION TO FIND THE ANSWER..



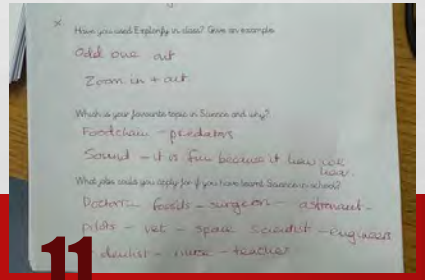
The interactive question wall has been a great success, with children enthusiastically contributing their ideas and engaging in scientific thinking.



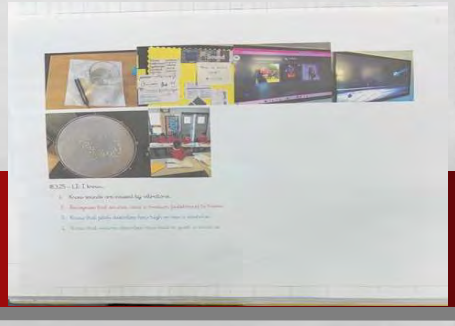


Starting point: There was no evidence of children asking Scientific questions. There were pockets of year groups recording the scientific enquiry skills in a set way and using scientific vocabulary.

Year 3 scientists in action! Working together to explore and compare the properties of rocks."

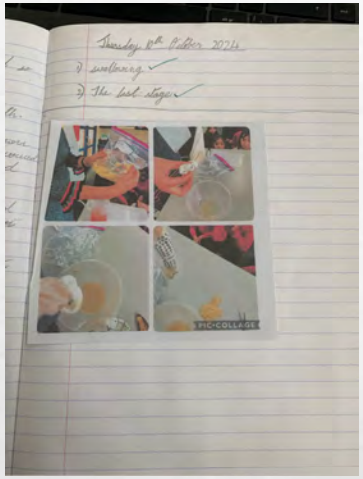


Year 4 used Explorify at the start of a topic. They loved finding the odd one out and forming discussions around it.



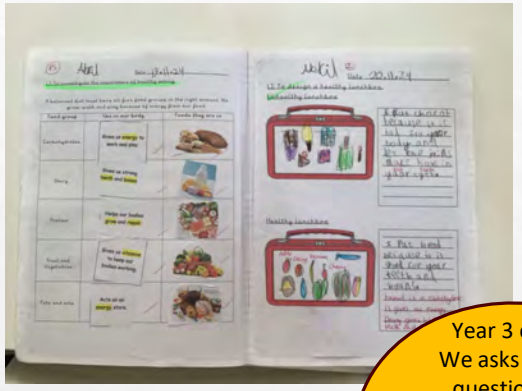
During PSQM journey:
We have introduced the question and vocabulary wall. Children now are taught Scientific vocabulary at the start of every topic and the vocabulary is always displayed on the vocabulary wall. This encourages them to speak in scientific language while answering a question or use while asking a scientific question.
The progress can be seen in the understanding of scientific terms and children are beginning to ask scientific questions using the right vocabulary.

TLA - TEACHING ENABLES ALL CHILDREN TO LEARN SCIENCE CONTENT AND PROCEDURAL KNOWLEDGE BY ENCOURAGING THEM TO ASK QUESTIONS AND EXPRESS IDEAS

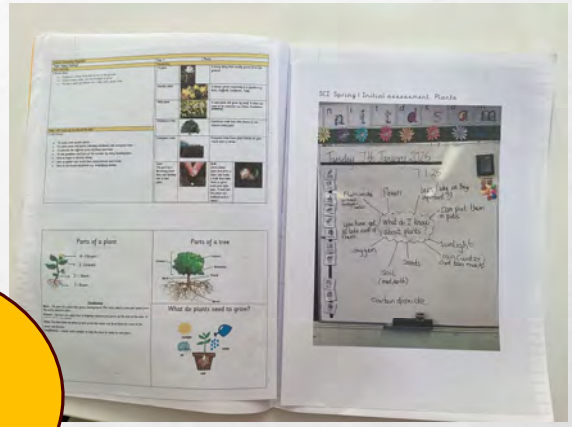


Year 4 explored the digestive system through a practical investigation using a plastic bag, a banana, and water to model the process of digestion in a hands-on and engaging way.

Year 4 documented their investigation using the Summerfield School proforma. They began by posing a scientific question and then carried out a practical experiment to explore and then record their findings.

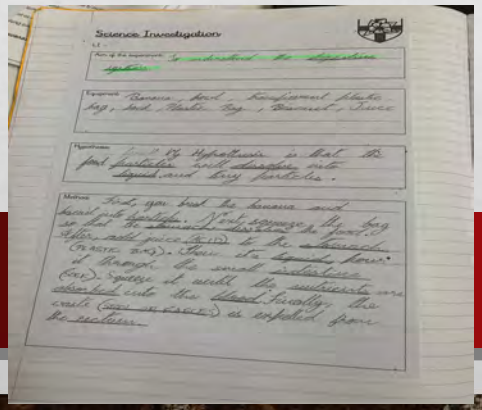


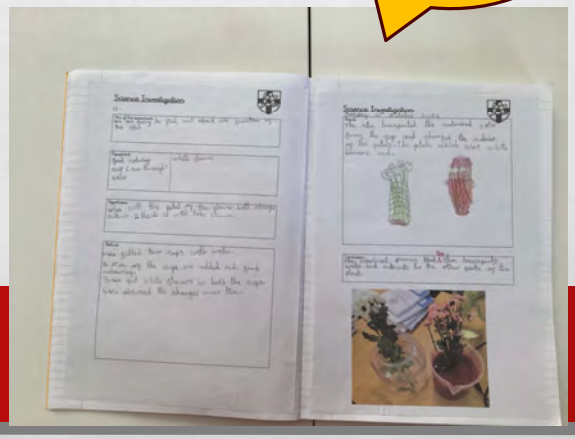
Year 2 explored the topic of healthy eating by sorting images of various foods and engaging in discussions about the different food groups and their importance to a balanced diet..



Year 1 engaged in a brainstorming activity to generate ideas and share prior knowledge about plants, forming the basis for their learning in the topic.

Year 3 child: We asks lots of questions in Science. We are able to find to answer to most of them and why it happens.





Year 3 investigated the functions of the stem and demonstrated their understanding through a practical experiment using food colouring and water. They were able to observe how the stem transports nutrients.

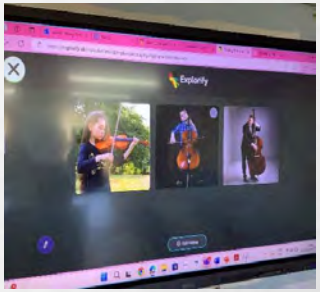
TLB - TEACHING ENABLES ALL CHILDREN TO LEARN SCIENCE CONTENT AND PROCEDURAL KNOWLEDGE BY USING APPROACHES AND RESOURCES THAT ENABLE LESSON OUTCOMES TO BE MET

Implement:
By planning a clear learning journey. (Assessment (cold task helps with the starting point for each child), series of lessons to be taught, Include Scientific enquiry skills, assess knowledge, understanding and disciplinary knowledge, Scientific vocabulary)

Year 1 investigated which material would be best for making a bucket. Through this practical enquiry, children explored the properties of different materials—such as waterproofness, strength, and flexibility—by predicting, testing, and observing outcomes. The activity supported the development of early scientific enquiry skills and encouraged pupils to apply their understanding to a real-life context.

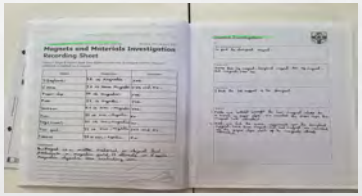
Year 3 explored how rocks are formed through a practical activity using chocolate to model the rock cycle. This engaging, hands-on approach allowed children to observe the processes of sedimentary, metamorphic, and igneous rock formations in a memorable and accessible way. Pupils thoroughly enjoyed the activity and demonstrated strong knowledge retention, showing clear understanding when recalling and explaining the different types of rocks and how they are formed

Year 3 investigated the strength of different magnets through a hands-on enquiry, testing which magnet could attract the most paperclips. Pupils worked collaboratively to make predictions, carry out fair tests, and draw conclusions based on their observations. They recorded their findings using the KS2 Science Enquiry Proforma, demonstrating progress in using scientifically skills such as planning, observing, measuring, and recording results accurately.

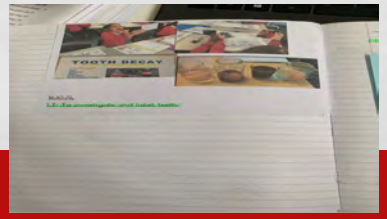


Year 4 used Explorify at the start of their science topic to spark curiosity and stimulate scientific thinking. The activity encouraged rich discussions, reasoning, and the use of scientific vocabulary. This all helps to assess prior knowledge and prepare pupils for new learning in an engaging and inclusive way.

Year 1 child-
We use magnifying glasses to see really small things. I found a tiny worm, spiders and lots of snails!



Year 4 carried out an investigation using eggs to model how tooth enamel can be eroded by different liquids. This practical activity helped pupils make real-life connections between science and dental health, while developing their enquiry skills through predicting, observing changes over time, and drawing conclusions. The visual and hands-on nature of the experiment supported deeper understanding and engagement for all learners.



Impact:
At our school, children are developing a good understanding of scientific concepts relevant to their age group.

Intend:
The Summerfield Scientist is equipped with the skills and resources to work scientifically and can communicate their findings in a variety of ways. They are curious about scientific processes.
They can apply a range of scientific enquiry techniques.
The Summerfield Scientist not only understands the science covered in the classroom but can make links with the outside world.

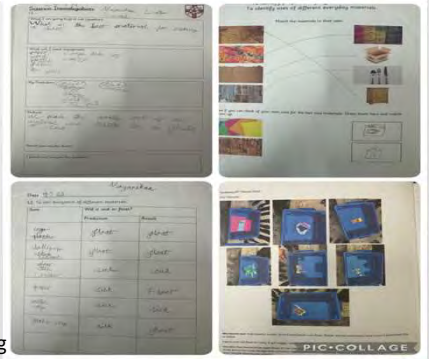
TLB - Teaching enables all children to learn science content and procedural knowledge by using approaches and resources that enable lesson outcomes to be met

We have successfully implemented the use of widgets to support our SEN pupils. These visual tools help make instructions clearer, reduce cognitive load, and increase accessibility for children with additional needs. As a result, pupils are better able to understand key concepts, follow routines, and engage more confidently in lessons.

In Year 2, pupils explored the concept of adaptation and used engaging, differentiated resources (a life size wooden camel and a smaller polar bear) to deepen their understanding and meet the intended learning objectives

Year 5 visited the Space Centre to enhance their Science capital and deepen engagement with their topic on Earth and Space. This real-world experience enriched classroom learning, sparked curiosity, and provided valuable context for scientific concepts. The trip served as both an inspirational resource and a meaningful way to connect science to the pupils' lives and their future aspirations.

As part of their learning on materials and their properties, Year 2 children investigated buoyancy using everyday objects such as plastic bottles, foil, and wooden blocks. This hands-on activity supported the development of key scientific enquiry skills, including prediction, observation, and recording results. Using familiar materials helped pupils make real-life connections, deepening their conceptual understanding and promoting enthusiasm for science.



Explorify : EY teacher

'This website is wonderful and such a useful and inspiring resource. I have told so many of my friends who are teachers about it as well as my own child's teacher who was running a science club. We all agree that it motivates and inspires children as well as teachers!'

The children engage well with the range of activities offered and it is easy to navigate and find suitable resources to link into most topics. The variety also lends itself well to starting lessons or simply to use as a discussion point throughout the day.

Year 5 child:
We went to the Space Centre. We got to see rockets, explore planets. I want to be an astronaut.

Year 3 enjoying using torches and mirrors to learn about reflection.

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

Early Year chid- I met a real fireman and a doctor.

Science Capital in Early Years:

Building science capital in EY involves fostering curiosity and positive attitudes toward science through everyday experiences. This includes encouraging exploration, using simple scientific language, engaging families in science-related activities, and connecting learning to children's lives. Early exposure helps lay the foundation for future science learning and confidence.

Fire Brigade 4.6.25

The Buckinghamshire Fire Brigade visited EYFS and told them all about what they do as well as giving them lots of information about the fire engine. They explained how the hoses worked and how much water the engines tank held. They also showed them different equipment and tools.

Visit from a GP Doctor 13.5.25

A Dr visited and took time to tell EYFS all about her job. She explained what she does when people are feeling unwell. She showed them basic equipment such as a thermometer and a stethoscope.

The Little Red Hen - Term 3

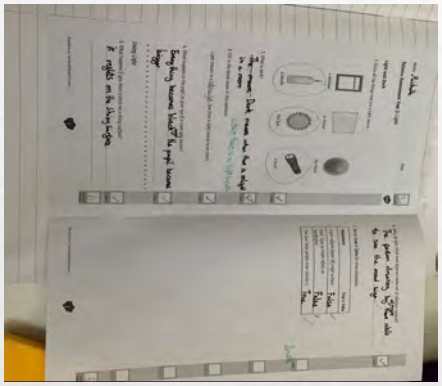
The children in EYFS visited our hens during their literacy lessons based on 'The Little Red Hen', they had the chance to feed them, observe their behaviour and see an egg being collected.

The Hungry Caterpillar - Term 4

To link in with the story of 'The Hungry Caterpillar' the children in EYFS had the opportunity to observe caterpillar eggs develop and evolve to their final stage of becoming a butterfly. They had the opportunity to observe and discuss each stage linked to the story.

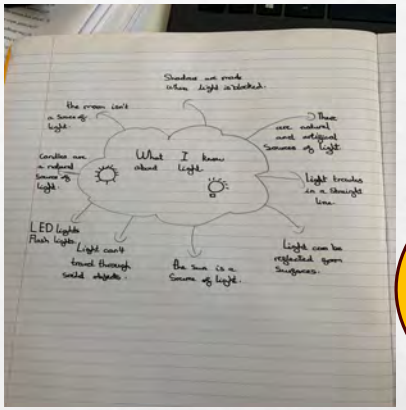
CDA – The science curriculum engages, inspires and challenges all children by promoting inclusion and equity

TLC - TEACHING ENABLES ALL CHILDREN TO LEARN SCIENCE CONTENT AND PROCEDURAL KNOWLEDGE INFORMED BY FORMATIVE AND SUMMATIVE ASSESSMENT



Starting point: Formative and summative assessment wasn't uniform and different year groups were recording scientific enquiry skills in a non uniform way.

Next steps:
To bring about a unified way of recording the cold task or a baseline unit assessment.



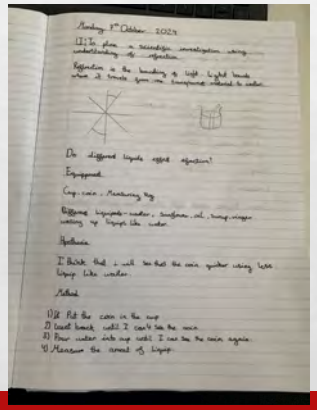
Across year groups, teachers assess pupils' prior knowledge before planning each science topic. This ensures that teaching is appropriately pitched and builds effectively on what pupils already know and understand.

Year 1 Teacher: Having a clear starting point and end point makes it easy for teachers to assess the progress the children have made within the unit taught.

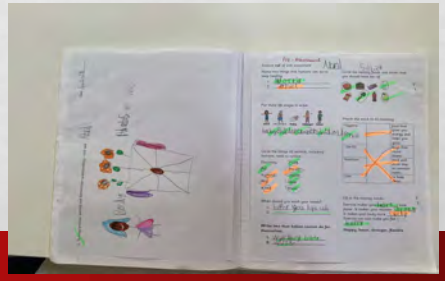
Teaching enables all children to acquire both scientific content and procedural knowledge, guided by formative and summative assessment. In Year 6, summative understanding is evaluated through an end-of-unit test, this help to ensure knowledge retention and to identify areas for further development.

During our PSQM journey, we have now got a uniform way of recording our scientific enquiry skills, formative and summative assessment. Formative assessment is recorded in our Sonar assessment platform and summative assessment is done at the end of unit.

Year 6 adopted a consistent format for recording scientific investigations, supporting the development of systematic working practices and enabling pupils to present their findings clearly and accurately.



In Year 2, a pre-assessment is conducted at the start of the topic to inform planning and enable adaptations that address the specific learning needs of the children.

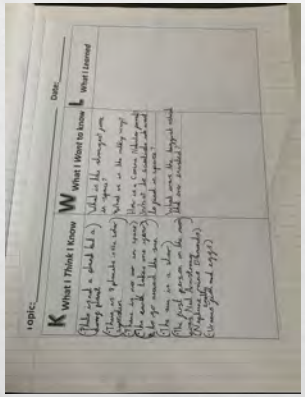


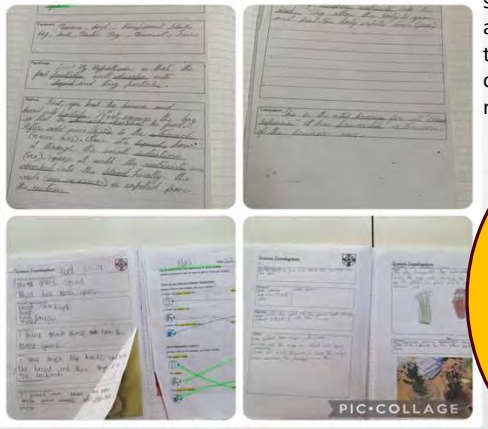
An example of a cold task which then helps teachers to adapt their plans to meet the needs of different learners.

TLC - TEACHING ENABLES ALL CHILDREN TO LEARN SCIENCE CONTENT AND PROCEDURAL KNOWLEDGE INFORMED BY FORMATIVE AND SUMMATIVE ASSESSMENT

ACROSS THE SCHOOL, ASSESSMENT IS CAREFULLY INTEGRATED INTO THE SCIENCE LEARNING JOURNEY, BEGINNING WITH A 'COLD TASK' TO ESTABLISH PUPILS' PRIOR KNOWLEDGE AND UNDERSTANDING AT THE START OF A UNIT. THIS FORMATIVE ASSESSMENT INFORMS TEACHERS' PLANNING, ALLOWING THEM TO ADAPT LESSONS AND TEACHING STRATEGIES BASED ON PUPILS' RESPONSES AND NEEDS. THROUGHOUT THE UNIT, ONGOING FORMATIVE ASSESSMENTS—SUCH AS QUESTIONING, OBSERVATIONS, AND MINI-QUIZZES—SUPPORT PUPILS' PROGRESS AND GUIDE TIMELY INTERVENTIONS. AT THE END OF THE TOPIC, A SUMMATIVE ASSESSMENT IS CONDUCTED TO EVALUATE PUPILS' OVERALL KNOWLEDGE AND UNDERSTANDING AGAINST THE LEARNING OBJECTIVES. THIS STRUCTURED APPROACH ENSURES TEACHING IS RESPONSIVE AND PROMOTES CONTINUOUS IMPROVEMENT IN PUPILS' SCIENTIFIC KNOWLEDGE AND ENQUIRY SKILLS.

In Year 5, a pre-assessment is administered prior to instruction to evaluate pupils' baseline knowledge and inform targeted teaching strategies.

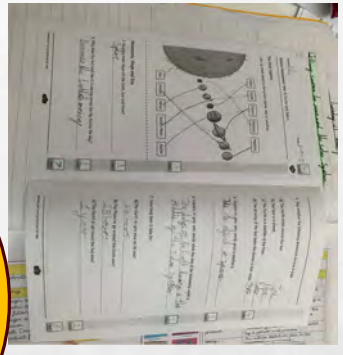


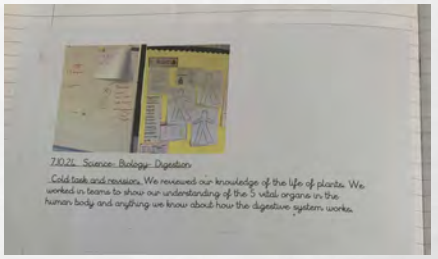


To support accurate and meaningful assessment of scientific enquiry skills, there is consistency in how Science Enquiry (SE) is recorded across the school, with tailored recording sheets designed specifically for KS1 and KS2. This approach ensures age-appropriate documentation of pupils' enquiry skills and supports clear progression in working scientifically from Early Years through to Upper Key Stages.

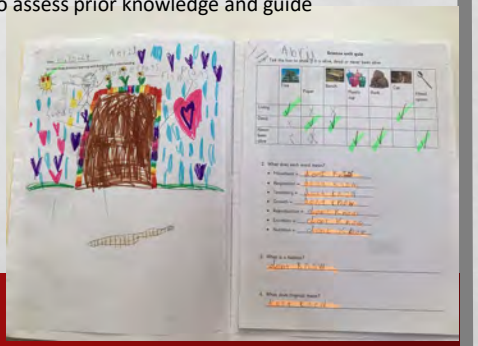
In all Year groups , summative assessment is administered, at the end of the unit to evaluate pupils' overall understanding and mastery of the topic.

Year 6 child- I was amazed to find that on my end of unit quiz I got full marks, but on my start of unit quiz I only got 3 marks. I have learned some much this year in Science.





Year 4 Cold Task:
Pupils classified substances as solids, liquids, or gases and explained changes of state to identify understanding gaps.
Year 2 Cold Task:
Pupils sorted objects by material and described their properties to assess prior knowledge and guide planning.

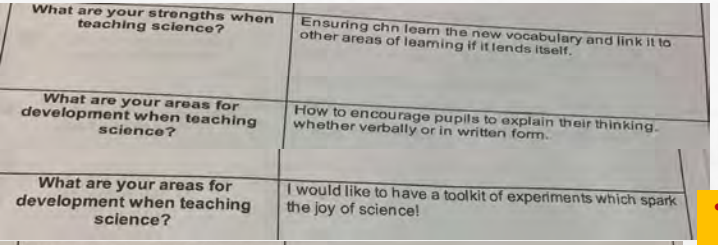


Intend:
To be able to assess each child effectively and efficiently and adapt planning according to the needs of the children.

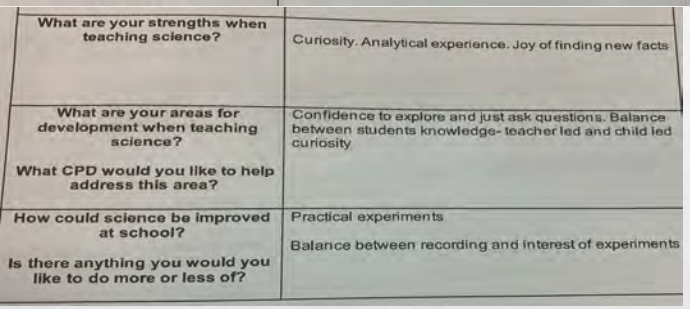
Implement:
We have implemented this by using a uniform assessment system which has helped to adapt teaching according to the needs of the children in each year group. All teachers know the starting point of the children in their class.

Impact:
At our school all children are challenged appropriately to learn more than they already know in science. This allows them to develop a deeper understanding of their Scientific knowledge.

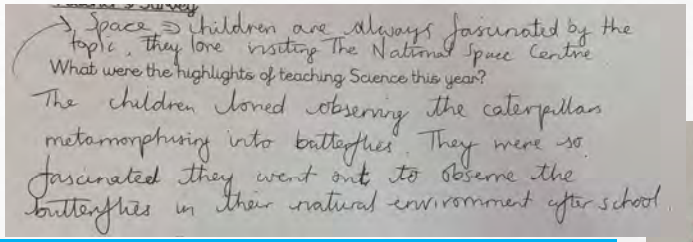
STAFF VOICES
OCTOBER 2024



What are your strengths when teaching science?	Ensuring chn learn the new vocabulary and link it to other areas of learning if it lends itself.
What are your areas for development when teaching science?	How to encourage pupils to explain their thinking. whether verbally or in written form.
What are your areas for development when teaching science?	I would like to have a toolkit of experiments which spark the joy of science!



What are your strengths when teaching science?	Curiosity. Analytical experience. Joy of finding new facts
What are your areas for development when teaching science? What CPD would you like to help address this area?	Confidence to explore and just ask questions. Balance between students knowledge- teacher led and child led curiosity
How could science be improved at school? Is there anything you would you like to do more or less of?	Practical experiments Balance between recording and interest of experiments



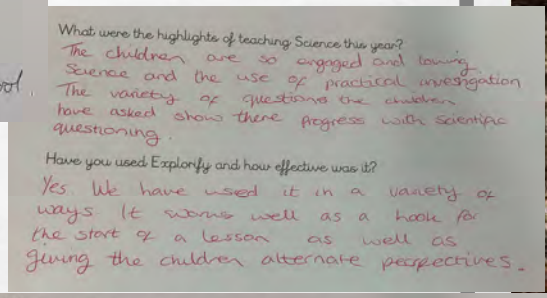
→ Space ⇒ children are always fascinated by the topic, they love visiting The National Space Centre

What were the highlights of teaching Science this year?

The children loved observing the caterpillars metamorphosing into butterflies. They were so fascinated they went out to observe the butterflies in their natural environment after school.

STARTING POINT: TEACHERS HAD NO PRIOR EXPERIENCE USING EXPLORIFY.
AREAS THAT NEEDED IMPROVEMENT: QUESTIONS, EXPERIMENTS AND VOCABULARY.

- ACTION: TEACHERS WERE INTRODUCED TO EXPLORIFY AND OTHER USEFUL SCIENCE WEBSITES DURING A STAFF MEETING.
- IMPACT: TEACHER FEEDBACK INDICATES THAT EXPLORIFY HAS BECOME A VALUABLE TEACHING RESOURCE.
- STUDENT EXPERIENCE: CHILDREN HAVE ENJOYED ENGAGING WITH A VARIETY OF EXPLORIFY ACTIVITIES.
- BROADER IMPACT: INCREASED DISCUSSIONS ABOUT SCIENTISTS AND DIVERSE SCIENCE CAREERS ARE INSPIRING PUPILS TO CONSIDER SCIENCE-RELATED FUTURES. BETTER SCIENTIFIC QUESTIONING AND USE OF SCIENTIFIC VOCABULARY BECAUSE OF THE WORKING WALLS.

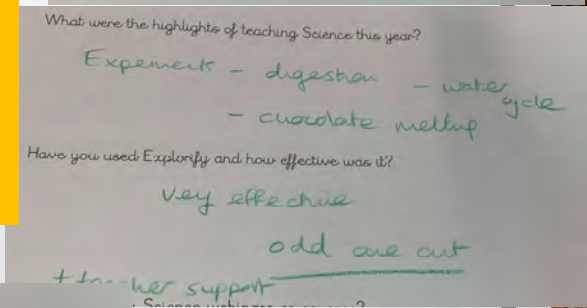


What were the highlights of teaching Science this year?

The children are so engaged and loving Science and the use of practical investigation. The variety of questions the children have asked show there progress with scientific questioning.

Have you used Explorify and how effective was it?

Yes. We have used it in a variety of ways. It works well as a hook for the start of a lesson as well as giving the children alternate perspectives.



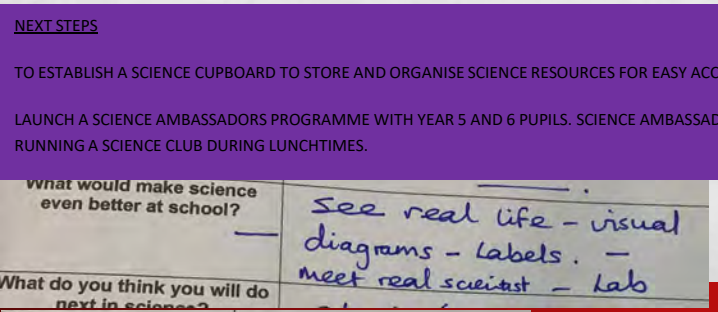
What were the highlights of teaching Science this year?

Experiment - digestion - water cycle
- chocolate melting

Have you used Explorify and how effective was it?

Very effective

odd one out



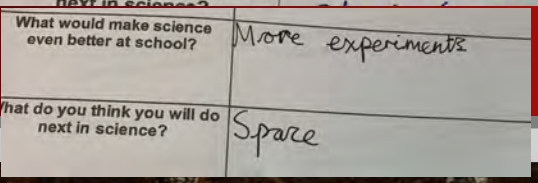
What would make science even better at school?	See real life - visual diagrams - labels. - meet real scientist - lab
What do you think you will do next in science?	

NEXT STEPS

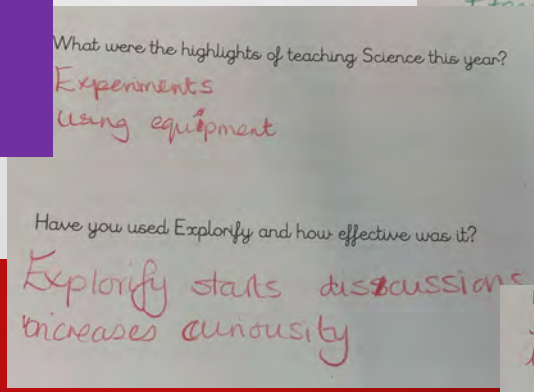
TO ESTABLISH A SCIENCE CUPBOARD TO STORE AND ORGANISE SCIENCE RESOURCES FOR EASY ACCESS.

LAUNCH A SCIENCE AMBASSADORS PROGRAMME WITH YEAR 5 AND 6 PUPILS. SCIENCE AMBASSADORS WILL LEAD AND SUPPORT YOUNGER CHILDREN BY RUNNING A SCIENCE CLUB DURING LUNCHTIMES.

PUPIL VOICES
OCTOBER 2024 JUNE 2025



What would make science even better at school?	More experiments
What do you think you will do next in science?	Space

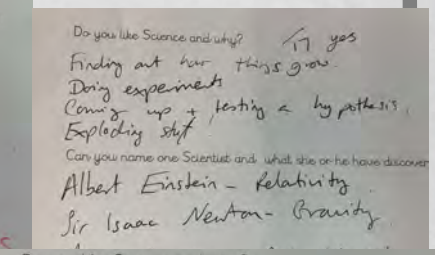


What were the highlights of teaching Science this year?

Experiments
using equipment

Have you used Explorify and how effective was it?

Explorify starts discussions
increases curiosity

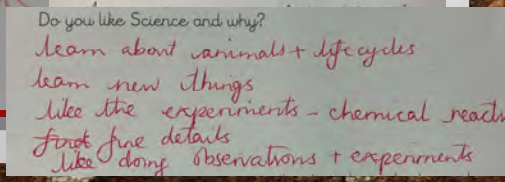


Do you like Science and why? 17 yes

Finding out how things grow
Doing experiments
Coming up + testing a hypothesis
Exploding stuff

Can you name one Scientist and what she or he have discover

Albert Einstein - Relativity
Sir Isaac Newton - Gravity



Do you like Science and why?

learn about animals + life cycles
learn new things
like the experiments - chemical reacts
find out fine details
like doing observations + experiments