



# SL A- the creation and implementation of a clear vision for science

Pre-PSQM

During-PSQM

Impact

Vision and principles were dated so needed to be reviewed.

## Staff Meeting Agenda – Science NS/NH

- Share the aims of the PSQM Award
- Share criteria and steps moving forward
- Review previous principles and update

Staff meeting was held to review and update our vision and principles.

5Mins

Science Principles

Post it notes

Science is good at our school when....

Groups

N, 2, 6

R, 3, 5

“Having the principles displayed throughout school ensures a consistent approach to the teaching and learning of science,”  
Year 5 teacher.

Abbott Community Primary School's Science Principles  
We are conducting experiments and investigations and using resources effectively.

We are leading our learning by developing lines of scientific enquiry.

We are able to explain our findings and reach informed conclusions.

We are effectively using scientific language in the correct

We can make links between learning and real-life

We can recognise links between learning.



Principles are now displayed on classroom walls and the whole school display.



“I like seeing the pictures for the principles because it lets me know what we are learning,”  
Year 4 pupil.

New Principles -All staff are fully aware of the school's vision and principles and these are now clearly displayed on planning.

The children are now able to conduct experiments effectively and are able to explain their findings using scientific vocabulary.

# SL A- the creation and implementation of a clear vision for science

Pre-PSQM

During-PSQM

Impact

Principles are now also clearly displayed on teachers' planning.

But, what do YOU want to find out?

What temperature does chocolate melt?

Which kind of chocolate melts the fastest?

Where will chocolate melt the fastest in the classroom?

As a team, choose a question that you want to investigate.



Class activity Which is a solid? Liquid? Gas? Convince me!



\_\_\_ must be \_\_\_ because

\_\_\_ can't be \_\_\_ because...

Key vocab:

difficult to compress

keep their shape

can't be seen

pour and runny

take shape of container

can't be held

fill containers

escape from unsealed containers

We are effectively using scientific language in the correct context.

'We are effectively using scientific language in the correct context'- This principle has had the most impact. The children are able to confidently use key vocab and sentence stems to answer questions; this meant that all children could access the lesson and use the vocabulary in the correct context.

Initially, the children really struggled to develop their own lines of enquiry. Therefore, teachers gave them a starting point with a few examples of questions.

'We are conducting our own experiments and investigations and are using resources effectively'- This is also one of our strengths, particularly in KS2. The children are now leading their own learning by generating their own scientific lines of enquiry. We do need to develop this further in EYFS and KS1.

Friday 27th January 2023

LO: Can I find out about the life cycle of an amphibian, mammal or insect?

SC: You will research the life cycle of an amphibian, mammal or insect; you will use iMovie to create your own movie of the life cycle.

We are able to explain our findings and reach informed conclusions.

We can recognise links to our prior learning.

# SL B- strategic support enabling improvement to take place

Pre-PSQM

During-PSQM

Impact

No regular release time for subject leaders

Release time has been given on an 'as and when' basis, but this has been inconsistent due to staffing

Release time enabled science lead to share the current position of science in school continuing to drive the vision, principles and expectations. This has allowed us to lead and monitor the subject effectively.

Had not been involved in any network meetings due to COVID-19

PQSM course has allowed us to network with other science leads. Network meetings to be attended in June 2023

NH and NS Release time log

Dates	Discussion Points/Actions	Next steps
04/10/22	Complete PSQM tasks and watch Subject leader spot light video	Make staff voice questionnaire
14/11/22	Met to discuss staff voice feedback	Plan staff meeting based on feedback
05/01/23	Arrange staff voice feedback	Lesson observations Arrange meeting with SLT discuss feedback
16/01/23	Discuss observation feedback	Research relevant CPD with WS focus

Networking has enhanced our curriculum, opening up experiences for children that previously would not have been considered due to the collaborative design of lessons and topics. It provided further opportunities to evaluate science lessons/topics and refine current practice to ensure endpoints were clear and achievable.

No science budget available due to funding

We met with SLT and business manager to discuss next steps and budget

An adequate budget has been agreed for the next academic year and will be reviewed annually.  
CPD costs will be deducted from whole school training budget

## VIPs (Very Important Points)

- To know where science is/the opportunities could be within the statutory framework for EYFS
- To gain confidence in monitoring science provision within EYFS in your school
- To ensure there is time for exploration in terms of science in EYFS and that progression is planned to adequately prepare children for KS1 science.

## Tuesday 1<sup>st</sup> November 2022

a.m.

11:45 – 13:45 Y5 Art Gallery Workshop (JG to accompany AJ in taxi)  
DC cover JG lunch duty

p.m.

13:00- NH and NS to meet with SLT regarding budget and science next steps  
13:00 Y4 PPA – LC  
13:00 – 15:15 HC Moderation Prep - JD  
16:00 – 18:00 Governors (Humanities team to attend 16:00 – 17:00)  
16:15 Football club to join Night owls

# SL C- an effective monitoring and improvement cycle that informs development in science

Pre-PSQM

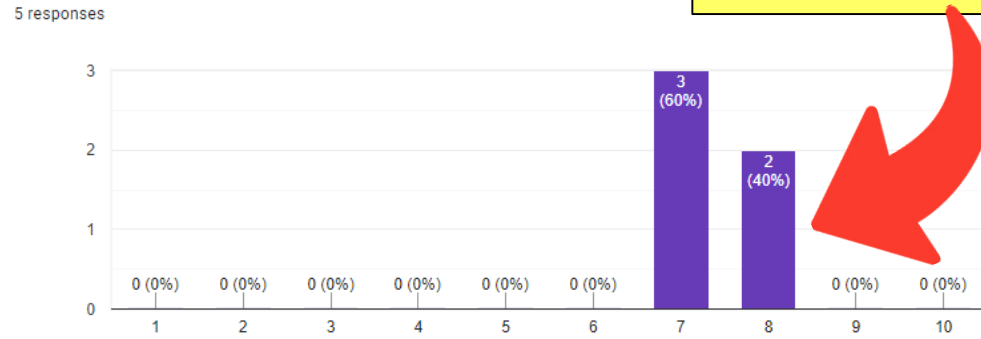
During-PSQM

Impact

Monitoring had not been done due to Covid-19 and other subjects taking priority.

Staff voice showed some confidence. But, many staff shared that they felt that they needed more support with new year group's content.

How confident (out of 10) do you feel at teaching science?



What are your areas for development when teaching science?

5 responses

Giving the children the opportunity to ask their own questions and set up their own enquiry to do it. Develop working scientifically skills. Incorporate the science principles into lessons.

I think I could use a wider range of resources rather than just relying on Rising Stars, which would hopefully give children a more well-rounded experience of the topic they're learning about.

New year group's curriculum

Subject knowledge is something I have to develop before teaching each lesson.

Since I have moved into a new year group this year, I need to develop my subject knowledge of the areas of science within the curriculum for my year group. Also ensuring accurate assessment through the use of end of unit tests. I

CPD for specific areas for development to improve the teaching and learning have been completed and will be reviewed. Staff confidence has improved.

"I like science but I want to investigate my own ideas,"- Y5 child.

Pupil voice across the school showed that pupils enjoy science and look forward to lessons. However, the older children were keen to lead their own learning and carry out their own investigations.

"When we get to decide our own investigations we felt like real scientists with a mission," Year 6 child.

There are now opportunities for children to lead their own learning.

"Science is fun and we learn new stuff. We get to learn about animals,"- Y1 child.



# SL C- an effective monitoring and improvement cycle that informs development in science

Pre-PSQM

During-PSQM

Impact

Staff voice showed highlighted that they would like CPD for understanding progression across year groups and working scientifically.

Teachers are now aware of what prior and future knowledge year groups will be learning.

School improvement plan showed that a whole school focus was to implement and monitor the use of new assessment documents and procedures.

Year 2						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	1. Healthy Me 1.1 Body & Mind 1.2 Healthy Choices 1.3 Coughs & sneezes	2. Materials Monster 2.1 Meet the materials monster 2.2 Working with materials	3. Squash, bend, Twist & stretch 3.1 Squash, squeeze, bend & Twist	4. Our Local Environment 4.1 Living things 4.2 Habitats 4.3 Food Chains	5. Young Gardeners 5.1 Young Gardeners	6. Little Masterchefs 6.1 Become a Masterchef 6.2 Let's get cooking!
	Animals including Humans	Uses of everyday materials	Uses of everyday materials	Living Things and their Habitats, Plants	Living Things and their Habitats	Animals including Humans

The Long Term Plan was updated to show strands of science. We had a staff meeting where we discussed what was covered in different year groups and how we can show progression.

Working Scientifically skills are being taught effectively.

## Quality of Education

Maintain a successful approach to 'Blended Learning'  
Continue to explore intent through newly-formed curriculum teams

- Ensure challenge for the More Able children in core subjects
- Ensure there is continued high quality teaching of MFL
- Develop a cohesive high quality provision for the teaching of phonics, vocabulary and spelling across the school and between Key Stages
- Implement and monitor use of new assessment documents and procedures.
- Enhance school transition procedures

A progression document has been developed.

## Progression of Study:

Strand of Science	Concept	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Working Scientifically	This concept involves learning the methodologies of the discipline of science.						
	<b>Understand Plants:</b> This concept involves becoming familiar with different types of plants, their structure and reproduction.				*plant classification	*plant reproduction /life cycles	*plant adaptation/ evolution/ inheritance
	<b>Understand Animal, Humans and Other Living Things:</b> This concept involves becoming familiar with different types of animals, humans and other living things; the life processes they share, including their habitats.						
	<b>Understand Evolution and Inheritance:</b> This concept involves understanding that organisms adapt, evolve and become extinct.						
		*identify how plants and animals, including humans, resemble their parents in many features		*recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth, millions of years ago		*identify how animals and plants are suited to and adapt to their environments in different ways	

Subject evidence folders were created and accessible to all.

This PC > Staff Shared Area (P:) > 1. Teachers > Curriculum > 3. Curriculum Standards > Science

Name	Date modified	Type	Size
Year 1	13/03/2023 07:25	File folder	
Year 2	22/03/2023 07:30	File folder	
Year 3	19/06/2023 16:09	File folder	
Year 4	17/02/2023 12:13	File folder	
Year 5	05/05/2023 12:24	File folder	

# SL C- an effective monitoring and improvement cycle that informs development in science

Pre-PSQM

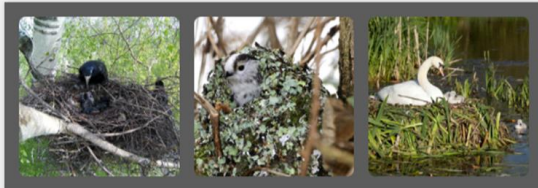
During-PSQM

Impact

Science observations let staff know what they are doing well and any improvements that can be made. The subject leader then works with staff to help improve any areas of development.

“Feedback is supportive. I know that it will help improve my teaching,” Staff member

Lesson observation feedback

LESSON DETAILS:	
Teacher: Rachael Peters	Observer: Natalie Swindell
Class: Year 2	Date: 9.1.23
What the teacher did...	The impact of what the teacher did on the pupils.
<ul style="list-style-type: none"> <li>Recap of the unit they are focusing on this half term - revisited key vocabulary (Stretch, Squash, Twist and Bend)</li> <li>Learning objectives were purposeful</li> <li>Paired Vocabulary activity - Children worked in kagan pairings. Children were shown two pictures and given one of the properties (stretch, squash, twist or bend). In their pairs they had to say which object had been designed with that property in mind.</li> <li>Misconceptions were addressed immediately.</li> <li>Whole class modelling of activity - Children were shown a collection of objects and then had to sort the objects by the properties. Each object chosen was modelled and the properties were discussed.</li> <li>Table activity - Children were set the sorting task that they had seen in the input to do in their kagan teams. Children had to identify the different properties of the selection of objects and complete the table.</li> <li>Behaviour for learning was good.</li> <li>Kagan opportunities for collaborative learning</li> </ul>	<ul style="list-style-type: none"> <li>All the children were aware of the learning had an awareness of the vocabulary. Some children were able to model what the word meant.</li> <li>Planned learning was purposeful/relevant</li> <li>Children were able to think about the properties of the objects chosen and why they felt that property was more so. Children's thinking more scientifically was challenged when objects were able to be both.</li> <li>Children given the correct information learning forward.</li> <li>Children had a clear understanding being set. Vocabulary being covered clearly modelled and all the children able to use this effectively when at objects.</li> <li>Children were engaged in the task to join in.</li> <li>Practical activity - children were keen to investigate the different teams.</li> <li>The same objects were being modelled. Having seen the input modelled most children were able to identify the properties of the objects - Try to some children not really fully investigate the table based on complete the table based on remember from the input.</li> <li>Having a different set of objects for independent work would have allowed further develop their sorting by it and to show if they fully understand they were secure with this year.</li> <li>Children engaged through learning throughout.</li> <li>Children were understanding</li> </ul>
<p><b>ODD ONE OUT</b></p> <p><b>A home for baby birds</b></p>  <p>What similarities and differences can you see?</p>	
<p>TA: NA</p> <p>FOLLOW UP: Yes</p> <p>Is any follow-up required? Yes</p> <p>If 'YES', outline required action: Try to incorporate use of Kagan &amp; collaborative learning - rally role</p> <p>Action completion date:</p>	

Science observation feedback- Spring 1 2023

Strengths	Next steps
Strong subject knowledge	Begin to use <u>explorify</u> where necessary to deepen thinking
High-level questioning throughout	Odd one out, convince me, what's the same, what's different types of activities to give children the opportunity to explain their understanding
Kagan used	How we are further challenging those children identified as greater depth
Misconceptions addressed immediately	Use the post-it plan when planning investigations
Key scientific vocabulary throughout the lesson	Develop understanding of scientific

Whole school feedback is shared in staff meetings so everyone is aware of what we are working towards and the strengths we are already showing.

Informal 'drop ins' were conducted in Summer 1 and it was evident that explorify was being used in lessons and contributed to further challenging those children identified as greater depth.

# ST A- engagement with professional development

Pre-PSQM

During-PSQM

Impact

No Science CPD opportunities since before COVID-19

Staff voice showed highlighted that they would like CPD for understanding progression across year groups and working scientifically.

Staff have a better understanding of the types of enquiry and they are now including them on their planning and discussing them with the children

What CPD would you like to help address this area?

5 responses

- ReachOut - Working Scientifically.
- Clarification on what other resources could be used so that we're not all doing something different to each other.
- The scheme is thorough and I can ask colleagues
- Science progression across year groups
- workshops for the class or online cpd courses? about progression across curriculum



What temperature does chocolate melt?

	Tray 1	Tray 2	Tray 3	Observational drawing
Temperature of water				

Share the cards out on your tables. Put the objects into the correct column.

Solid	Liquid	Gas

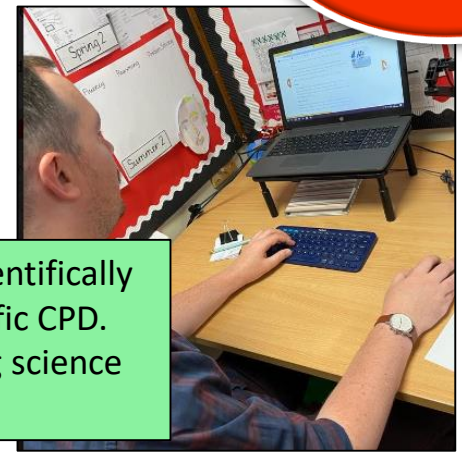


“There is so much to know it is great to know I can complete quick refresher courses,” Staff Member

“The symbols are clear and consistent. My class get excited when they see them as they know it's science,” Staff Member

“Just knowing where to go for CPD has been a huge help,” Staff Member

Staff meeting held to discuss the types of enquiry and ReachOut CPD. Time given to complete the CPD.



Staff have all completed the Working Scientifically CPD on ReachOut and year group specific CPD. Teachers feel more confident in teaching science because of the CPD



# ST B- use of a range of effective teaching and learning strategies

Pre-PSQM

During-PSQM

Impact

The scheme of work that we use has activities for lessons, key questions, resources needed and assessment opportunities.

A new scheme of work is currently in the process of being purchased.

Medic students taught Y4 science units



Other resources are being used alongside the current scheme to ensure that the National Curriculum objectives are being taught and that there is a clear sequence of learning.

As a result of using these resources, the children's scientific explanations have improved greatly and they are able to challenge each other's thinking.



Have you ever not been able to see yourself in the bathroom mirror?



1. What happened?
2. What were you doing at the time?
3. Did you try to clear the mirror? Did it work?
4. Can you think where else you have seen this happen?
5. Have you ever tried to write your name or draw something on this glass?
6. Why do you think it happens?

LET'S THINK LIKE SCIENTISTS  
Use these questions to develop research skills and speaking and listening:  
How big are the planets?

## 1 THE SOLAR SYSTEM

L.O. Describe the movement of the planets and other planets relative to the Sun in the Solar System. Report and present findings from investigations, including conclusions, causal relationships and explanations of a degree of trust in results, in oral and written forms such as displays and other presentations.

Working in groups, ask the children to discuss the planets in our Solar System. See how many of them they know and what they know about them. They could record their ideas on a large sheet of paper, each person adding what they know in a different colour pen and then writing their name in the same colour. This helps assess

### YOU WILL NEED

- PowerPoint Slide 5
- Video clip - 'The Solar System Song'
- Activity Resource 1.1
- Interactive activity
- PowerPoint Slides 5, 6 and 7

### ASSESSMENT

- Subject Knowledge
- Em. Children can name some of the planets in the Solar System.
  - Exp. Children are able to name and describe planets in the Solar System in the correct order from the Sun.
  - Exc. Children have extended their research beyond the classroom and are able to talk about similarities and differences between planets in the Solar System.

When we reviewed the scheme of work and carried out staff voice, we found that the scheme of work lacked a clear sequence of learning.

Practical investigations help visual new concepts and enhance learning opportunities.

Christopher Nibbles would ask the children high-order questions to investigate and find out the answers to.

Play-based learning is a vital aspect of learning in EYFS. The children were learning about plants and minibeasts so a 'florist' was set up.

The children had the opportunity to explore their new topic and engage with problems through playful exploration.



Christopher Nibbles says, "Year 1, will you help me learn how to grow and care for a dandelion?"



What does a dandelion need to be able to grow?  
How can you care for a dandelion?

# ST B- use of a range of effective teaching and learning strategies

## Pre-PSQM

## During-PSQM

## Impact

Teachers' planning incorporates formative assessment opportunities and (Y6 example) shows that key vocabulary is taught explicitly before a topic. As a school, we are beginning to link vocabulary to prior learning.

In Y1, the children used a multi-sensory approach by exploring what they thought was in the box. They had to describe what they thought it was to their friends, promoting discussion.

More formative assessment opportunities are planned through higher-order questioning; this was evident on teachers' planning and used to pre-empt any misconceptions children may have.



Why was Mary Anning important?  
Was her work useful to scientists?  
Would you class her as a scientist? Why/why not?

MPS- Imagine a world without electricity. What would you miss? How would you create light, heat, entertainment?

What do you know about any dangers associated with electricity? What have you been warned about before?

The children were challenged to 'think scientifically' and had to think deeply about their answers. This also led to in-depth discussions and resolved any misconceptions the children may have had.

This led to the children creating their own questions such as, "Which ingredient melts ice the quickest/slowest?" and "What happens to ice when you put something on it?"



The children raised their own questions from this and used scientific vocabulary to describe what they had smelt/felt. E.g. it is bumpy, it is smooth.

The children are given lots of opportunities to explore through play. In Y2, the children were exploring ice. They had different ingredients to put on the ice (sugar, salt, coffee etc.) and had to explore what happened.



Have you heard of any of these words before? What do you think they might mean? Think back to when you learnt about rocks and fossils in Year 3.

### Key vocabulary

- Adaptation
- Camouflage
- Environment
- Evolution
- Evolve
- Features
- Fossils
- Inherit
- Survival of the fittest

Many children knew some of the key vocabulary based on their previous learning. The children had some background knowledge before starting their topic so were able to engage well with the topic.





# ST C- regular and safe use of up-to-date quality resources

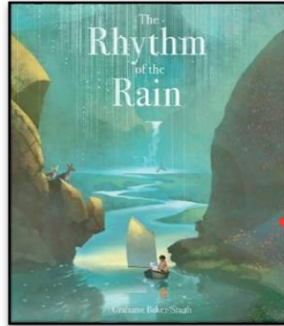
Pre-PSQM

During-PSQM

Impact

We use Purple Mash, and regularly use the science resources to provide additional opportunities for the children to consolidate their learning.

A whole-school event was planned to link with the theme 'connections'. Each class were given a science-rich text to focus their learning on.



Nursery- The Very Hungry Caterpillar

Reception- Oliver's Fruit Salad

Year 1- Christopher Nibble by Charlotte Middleton (plants)

Year 2- Bloom by Anne Booth <https://tinyowl.co.uk/discover-fun-bloom-activities/> activities on [twinkl](https://www.twinkl.com) too

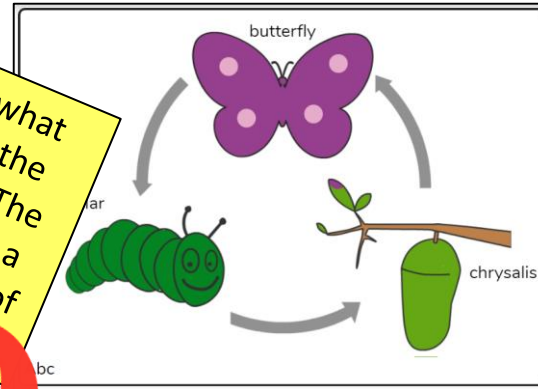
Year 3- The Tin Forest by Helen Ward (CLPE and Literacy Shed resources)

Year 4- The Rhythm of the Rain by Graham Baker-Smith

Year 5- Aerodynamics of Biscuits by Clare Walsh (forces) <https://clarehelenwelsh.com/resources-and-teaching-materials/teaching-resources/>

Year 6- Blackout by John Rocco (electricity) <https://www.youtube.com/watch?v=v2Imov6gJus>

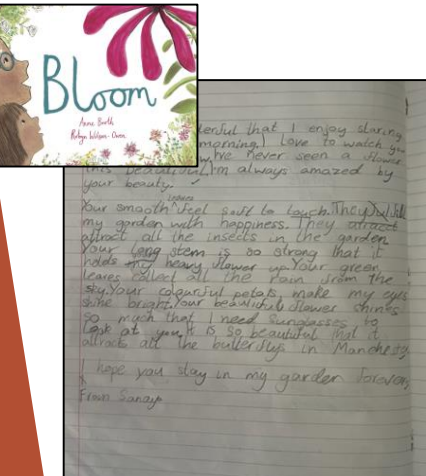
In Y4, the children used what they already knew about the water cycle, and the story 'The Rhythm of the Rain' to write a recount from the perspective of the water bottle.



In Y5, the children used iPads to research life cycles, they then used iMovie to create their own movie based on the life cycle they had researched.

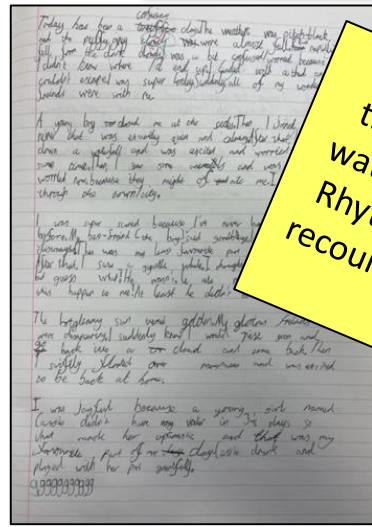
The children were able to use the technology to showcase their learning in a different way.

In EYFS, the children used Purple Mash to show a simple life cycle of a butterfly.



In Y2, the children used the book Bloom as a stimulus and learnt about parts of a plant and their functions before writing a descriptive letter to their own plant.

The children were able to confidently write longer texts due to their extensive understanding of the scientific topic. Strong cross curricular links were made.



# SL A- the purposes and process of science enquiry

Pre-PSQM


During-PSQM

Impact

The children were all engaged in scientific enquiries but were not aware of the different enquiry types .

As a result of the CPD mentioned on slide 8, teachers' planning incorporates the enquiry types and they are displayed in classrooms.

"Today we are carrying out a fair test to find out about the changing state of water,"  
Year 4 child,



Material	Amount of
Paper bag	350ml
Plastic bag	350ml
Foil bag	250ml
Fabric bag	345ml

Children in KS1 are now developing an awareness of scientific types of enquiry.

Conclusion  
Dear Dad  
We tested  
bags to see different  
would keep the  
the coolest. We  
out that the foil  
was the best keep  
the drink coldest.

"I think the foil bag will be best because ,"  
Year 1 child explaining which material they thought would keep the water the coldest.

Y3 sorted and classified different rocks into igneous, sedimentary and metamorphic.

Plan investigation



We are investigating the changing state of water

variables:

The variables we could change	The variables we could measure/observe												
<table border="1"> <tr> <td>place</td> <td>amount of ice</td> <td>tray</td> </tr> <tr> <td>temperature</td> <td>liquid</td> <td>shape</td> </tr> </table>	place	amount of ice	tray	temperature	liquid	shape	<table border="1"> <tr> <td>temperature</td> <td>time</td> <td>how much water is left</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	temperature	time	how much water is left			
place	amount of ice	tray											
temperature	liquid	shape											
temperature	time	how much water is left											
We will change	We will measure/observe												

measure/observe  
temperature  
time taken for ice to melt  
how much water is left in the tray

Three Types of Rock Sort

Igneous	Sedimentary	Metamorphic
 obsidian	 conglomerate	 shale
 sandstone	 quartzite	 gneiss

In KS2, we regularly use the PLAN resources to plan an investigation. The children understand what variables are and can ensure that they keep certain variables the same to make it a fair test.

Children in KS2 can now confidently talk about what type of enquiry they are using.

After their unit on adaptation, Y6 had to research one of the living things and produce an annotated drawing of their animal or plant.



- Arctic Fox
- Frog
- Cactus
- Penguins
- Camels
- Meerkats
- Crabs
- Antarctic Seals
- Flamingos

Research one of these living things and answer the following:

- What kind of habitat does the plant or animal live in?
- What are the conditions like?
- How is the plant or animal adapted to living in its habitat?
- How many different ways is the animal adapted to their habitat?
- Why does it need those adaptations?

Produce an annotated drawing of your animal or plant to show its adaptations.

# SL B- the purposes of science assessment and current best practice

Pre-PSQM

During-PSQM

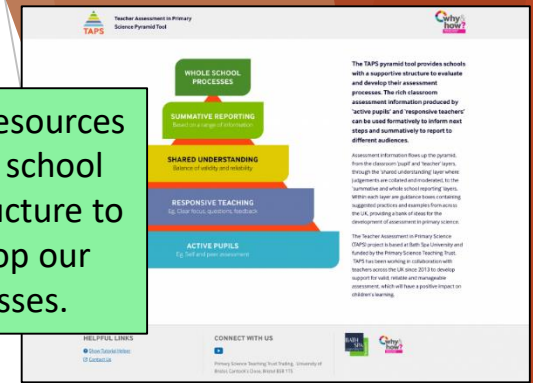
Impact

Whole school assessment documents have always been in place but hadn't been reviewed for a while as it wasn't part of the SIP. Some aspects of formative and summative assessments were in place.

Formative assessment takes place throughout every lesson, through discussion and questioning. We also use Kahoot! to complete quizzes and inform summative assessment.

CPD about the TAPS resources has provided us as a school with a supportive structure to evaluate and develop our assessment processes.

With the current scheme, end of unit assessments take place.



Lower Key Stage 2		
	Year 3	Year 4
<b>Chemistry – Investigate Materials:</b> This concept involves becoming familiar with a range of materials, their	<b>Rocks and Soils</b> <ul style="list-style-type: none"> <li>Can they compare and group together different rocks on the basis of their appearance and simple physical properties?</li> <li>Can they describe and explain how different rocks can be useful to us?</li> <li>Can they describe and explain the differences between sedimentary and igneous rocks, considering the way they are formed?</li> <li>Can they describe in simple terms how fossils are formed within things that have lived are trapped within rock?</li> <li>Can they recognise that soils are made from rocks and organic matter?</li> </ul>	<b>States of Matter</b> <ul style="list-style-type: none"> <li>Can they compare and group materials together, according to whether they are solids, liquids or gases?</li> <li>Can they explain what happens to materials when they are heated or cooled?</li> <li>Can they measure or research the temperature at which different materials change state in degrees Celsius?</li> <li>Can they use measurements to explain changes to the state of water?</li> <li>Can they identify the part that evaporation and condensation has in the water cycle?</li> <li>Can they associate the rate of evaporation with temperature?</li> </ul>

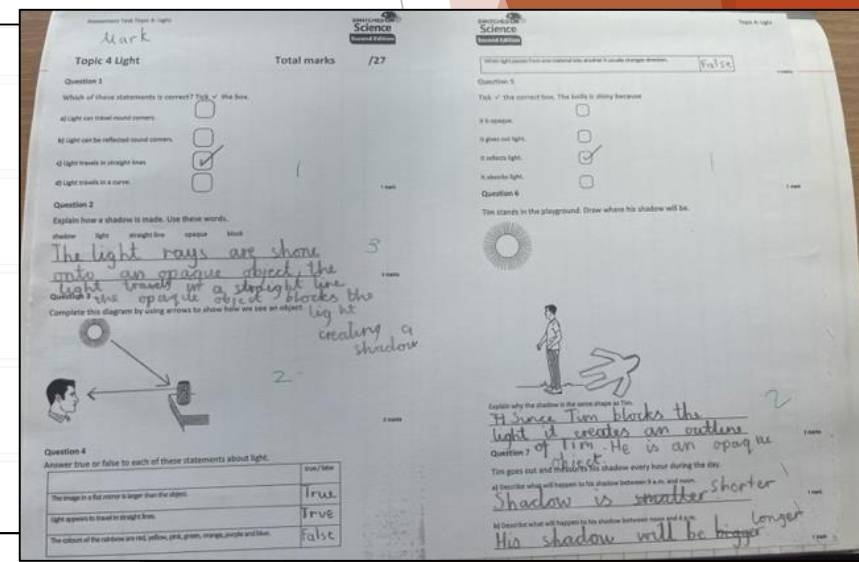
We reviewed the assessment documents and realised that they needed updating to reflect the scheme of work we use and links to the three strands of science

Science	No. in Cohort	Well Below <50%	Below 51-75%	Working Towards 76-99%	Expected 100%	Depth 100% plus most of GD objectives
Previous Year			Child A	Child B*	Child C	
					0%	0%

Teachers are able to accurately assess the children based on the National Curriculum objectives

How long does it take the Earth to spin on its axis?
3 - Quiz
Which planet is closest to the sun?
4 - Quiz
Which planet is furthest from the sun?
5 - Quiz
We have different seasons because of...
6 - Quiz
We have day and night because...
7 - True or false
The Sun moves across the sky

This allows teachers to put additional support or challenge in place to ensure that all children are making progress.



Teachers use summative assessment alongside their teacher judgment to assess where the children are working and use this to inform next steps in planning.

# SL C- the importance of, and strategies for, developing all children's science capital

Pre-PSQM

During-PSQM

Impact

Children and staff were not aware of the understanding of science capital.

During a staff meeting, we discussed what science capital is and then watched the Spotlight video and used the PowerPoint.



Introducing Science

Clare Warren  
Senior Regional Hub

So what exactly is science capital

"Science capital refers to science-related qualifications, understanding, knowledge (about science and 'how it works'), interest and social contacts (e.g. knowing someone who works in a science-related job)."



Children and staff now understand that science is relevant and important and science capital is raised.

"I felt so proud representing my school and being given the opportunity to work with other people,"  
Year 6 Child

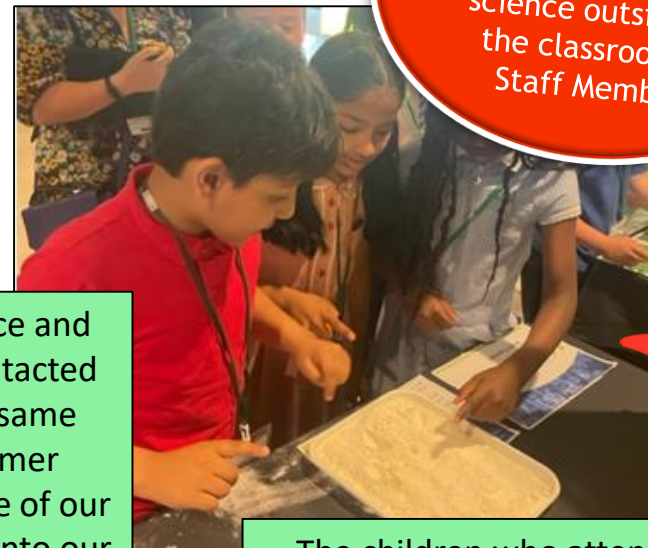
"It was so fun getting to do so many different science things,"  
Year 3 Child

"It was interesting to learn about science capital because we often hear about it, but I was unsure of what it meant,"  
Staff member.

Employees from the Science and Industry museum have contacted us about them doing the same experiment at their summer school; they've invited some of our children and want to come into our school to deliver sessions.

The children who attended the Science Share are going to lead an inter-school Science Share in July

Subject Leaders took 8 children to represent the school at The Great Science Share for Schools 2023.



"Opportunities like this really allow the children to see science outside of the classroom,"  
Staff Member

# SL C- the importance of, and strategies for, developing all children's science capital


Pre-PSQM

During-PSQM

Impact

Pupil voice showed that children were not aware of the different types of jobs in the scientific field.

We developed a whole school plan where the children would learn about a different scientist and their job each half term.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Year 1</b>	Sensory Scientists- Dr Sara Jaeger and Dr Richard Newcomb 	Polar Scientist- Prem Singh 	<b>Famous Scientist-</b> Isaac Newton- focus on light (prisms) 	Ornithologist- John James Audubon 	Neurobiologist- Dr Aarti Sehdev 	Marine Biologist- Dawood Qureshi 
<b>Year 2</b>	Virologist- Nelly Mak 	Materials and modelling- Dr Parvez Alam 	Materials Scientist- Pearl Agyakwa 	Ecological Entomologist- Dr Ben Woodcock 	<b>Famous Scientist-</b> David Attenborough 	Science Communicator- Ginny Smith 

Moving forward, we want to involve the families and the community to come into school and discuss their job roles with the children.

The children have been exposed to a range of jobs that they may not have been aware of. This has given them a wider range of career prospects for future.

## A Scientist just like me

### What do I do as an astrophysicist?



I use extremely large telescopes to study planets around other stars (these are called exoplanets). I analyse their size, composition and temperature. Some are 100 times hotter than Earth, some rain iron, and some are made up completely of gas! They're all different and exciting.

### Hi there! I am Vanessa Emeka-Okafor – an astrophysicist



#### Where do I work?

I used to work at the European Southern Observatory in Germany as a science journalist but now I work as a research student at the University of Warwick.

"I want to help save the world like David Attenborough," Year 2 child.

"It's nice to know that people like me can be successful in a range of jobs," Year 5 child.

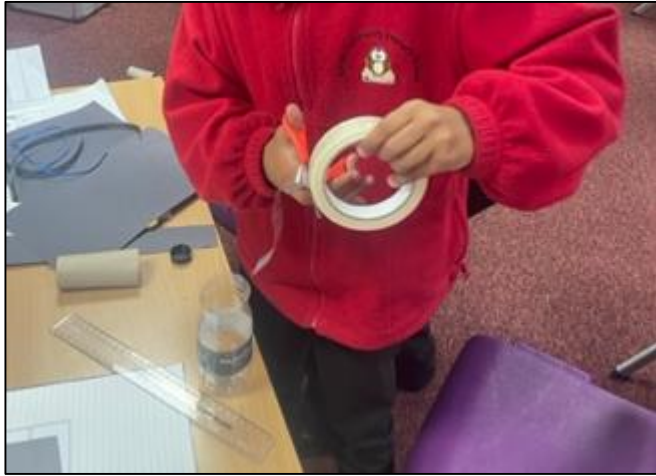


# WO A- cross-curricular planning that links science to other areas of learning

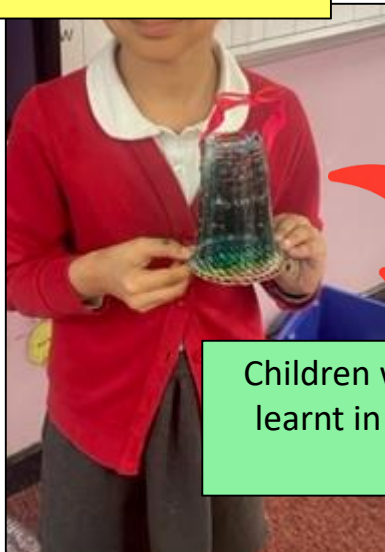
Pre-PSQM

During-PSQM

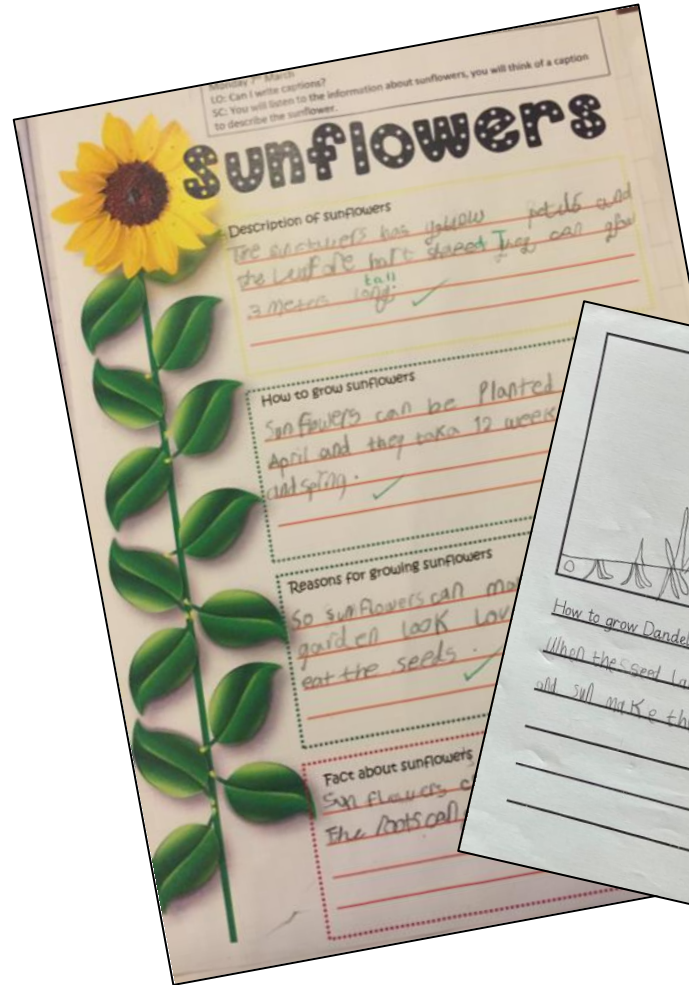
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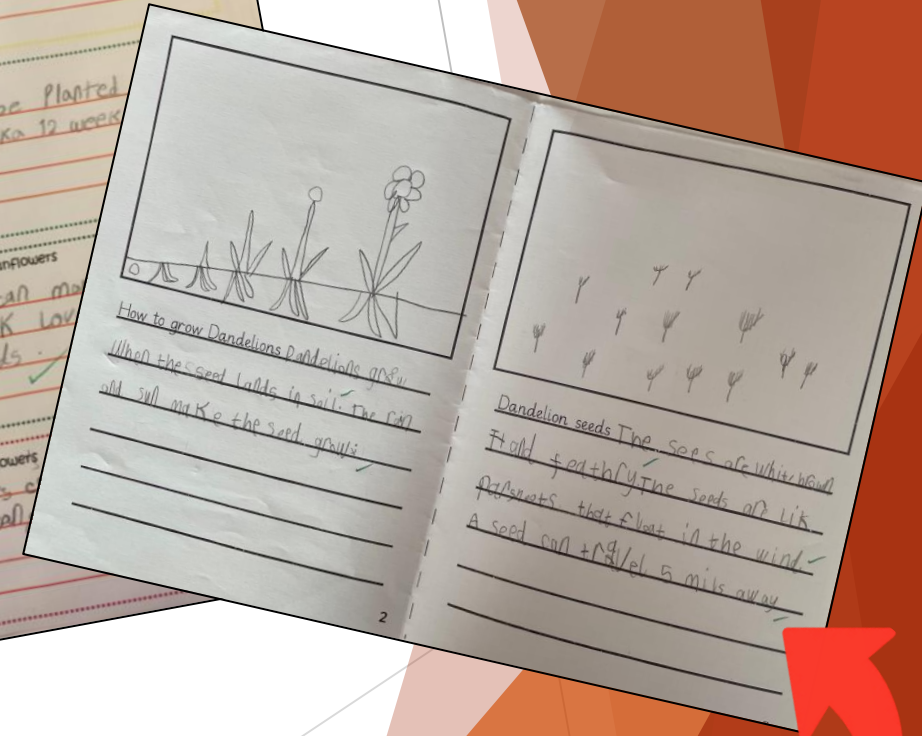
Year 4 made lights in DT after learning about electrical circuits



Children were able to use what they had learnt in their science lessons to create their final products



Year 1 wrote their own non-fiction fact sheets and books in Literacy after their learning about plants.



Children were able to remember the key features and facts to help tell others about plants and how to care for them.

# WO A- cross-curricular planning that links science to other areas of learning

Pre-PSQM

During-PSQM

Impact

Children in Y6 used their knowledge and understanding of graphs to draw line graphs to present their data.

Year Group: 1 Autumn 2	Core Text: Lost and Found by Oliver Jeffers	Topic Links: Science – Hot and cold places. Seasonal changes. Geography – Identifying North, South pole and Equator
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Our current English scheme of work has scientific links.

Write a clearly organised explanation text to explain the life cycle of a flower.

Why do plants need flowers?

Flowers are important because they make oxygen. They are usually colourful and can attract insect seeds. Did you know that flowers are sometimes used for making tea? Flowers help to make plants grow.

Germination

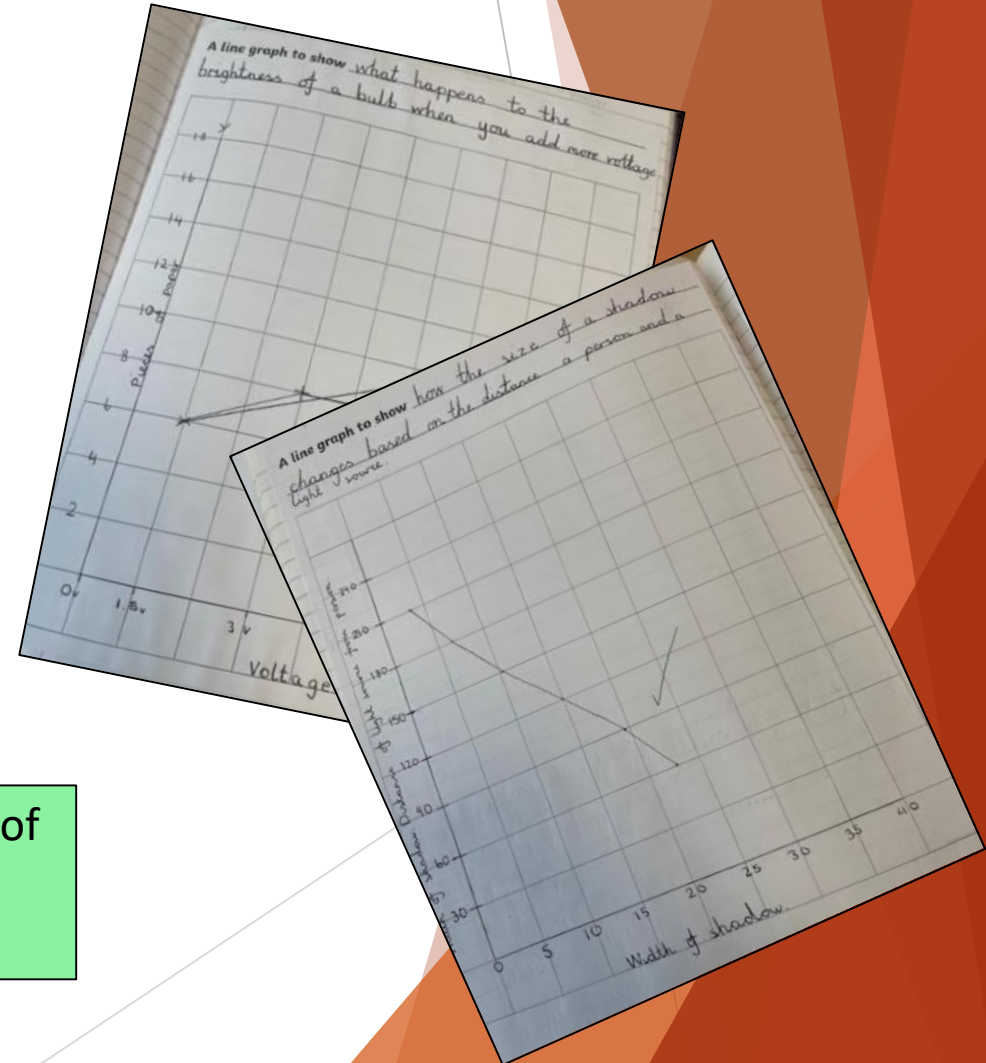


You need to have seeds and water and light. Germination is when your seed turns into a seedling. The roots anchor the plant.

Children in Y3 used what they had learnt in science to explain the life cycle of a flower.

First of all, is your ~~not~~ mouth. When you eat the food, your mouth ~~it~~ mixes it with saliva and it softens the food so ~~so~~ it ~~de~~ goes down your ~~throat~~ throat. Then the food ~~low~~ travels down the oesophagus and it passes the food down to the stomach which holds on to ~~the~~ the food while it's broken down by powerful acids and enzymes. Then it ~~prosse~~ passes down to the small intestine ~~who~~ where the food is broken down more. The nutrients are absorbed into the liver, the leftovers are carried onto the ~~col~~ colon as a liquid. Finally, the food goes to the ~~After this,~~

Children in Y4 used their knowledge of the digestive system to write an explanation text in English.



# WO B- provision of a variety of opportunities that deepen and extend learning

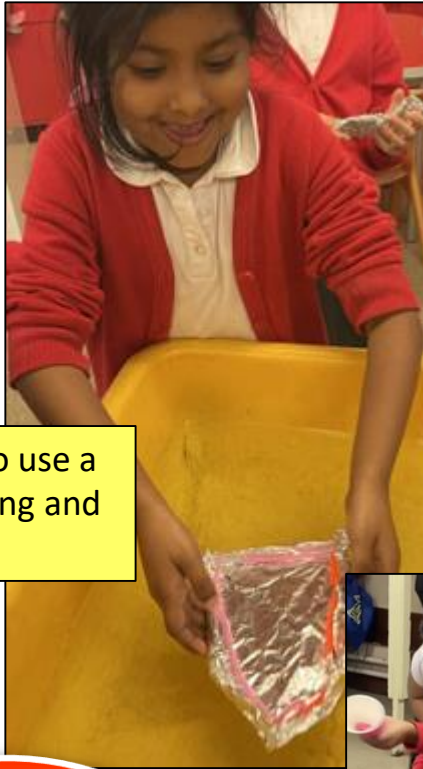
Pre-PSQM

During-PSQM

Impact



KS1 and KS2 STEM club. Children had to use a range of science, technology, engineering and maths skills.



"I brush my teeth everyday in the morning and before bedtime"  
EYFS Child



Oral hygiene has been a concern and a priority in the early years. EYFS had the dentists come in to show the children how to care for their teeth and what the role of a dentist was.



"Stem Club was so fun and we got to learn so many new things"  
Year 4 Child



# WO B- provision of a variety of opportunities that deepen and extend learning

Pre-PSQM

During-PSQM

Impact



"I found this really interesting and it is something I maybe want to do as a job"  
Year 6 child



Many children felt inspired to go into a biomedical sciences career.

Year 4 were visited by medical students from the University of Manchester. The students taught the children about the importance of having and maintaining a healthy lifestyle.



The children had a better understanding of the different food groups and how they can ensure they have a healthy lifestyle.



Year 6 had a careers convention where University of Manchester Biomedical Sciences Department brought 1 professor and 2 masters students in. They spoke to the children about what a bio sciences are, the different types of sciences in general and what qualifications are needed to have a career in biomedical sciences. They then did some experiments with the children that they'd do in a lab.