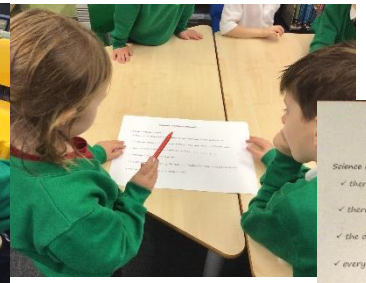
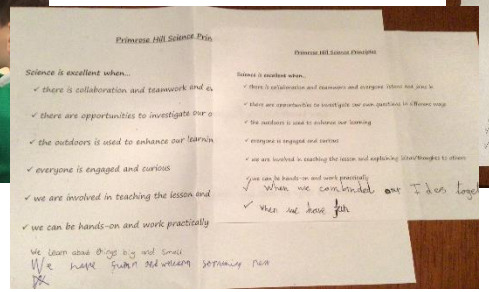
EUXTON
PRIMROSE HILL
Primary School
"Together we will make a difference."

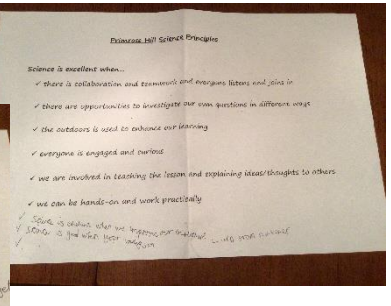
Euxton Primrose Hill Primary School
PSQM Portfolio 2022 (Round 21)

PRE PSQM | PSQM | IMPACT | STAFF/CHILDREN/VISITORS' COMMENTS

SLA: There is a clear vision for science



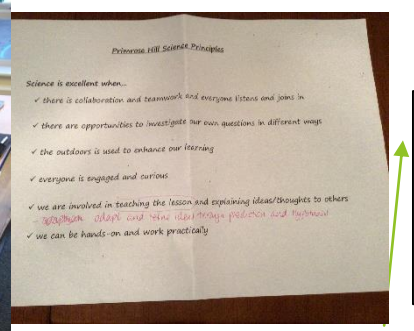




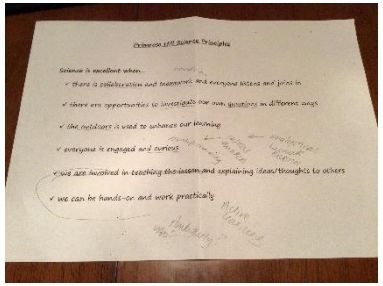
Science leaders from each class discussed the previous principles and amended and added to them.

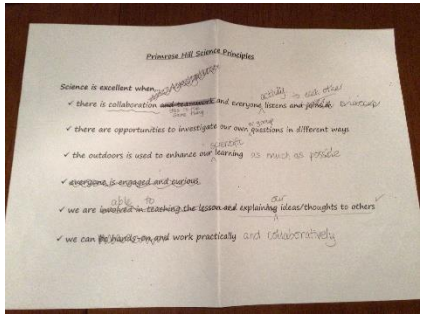
The children's thoughts and the teachers' were combined to create a new set of principles – one for KS1 and one for KS2. Small copy to go in books and large ones for display in classes.

Children and staff more aware of what makes an excellent science. Will build on this over the coming years. Head felt, with slight adjustments, could apply to all subjects and plans to use across school.



Staff also discussed and amended the previous key principles for an excellent science lesson.





KS1

Still a work in progress – in books but aim to make more of a push in referring to them next year and more use of the science leaders to make suggestions of how can incorporate them in lessons.

KS2

SL B There is strategic support enabling improvement to take place

- Budget for science reflected status as core subject – resources provided when requested
- Release time for subject leader each term
- Release time provided for training and cluster meetings (some were suspended during worst of Covid)
- Targets for science on SDP before Covid

SUBJECT BUDGET BIDS – 2022

Subject:	Science
Cost Centre:	04SCIENCE
Subject Leader:	K. McKinley

General Resources (Including CPD)	**Cost**	**Intended Impact**
Consumables and updating of any resources	£200.00	Ensure each class has enough resources for their topics.
Snap Junior Circuit kits x6 (£19.99 per kit on Amazon)	£120.00	Greatly enhance the teaching of circuits in year 4 and 6 - extend learning and allow for more breadth of topic as well as link to real life applications
Total for General Resources:	**£320.00**	

Subject Based Subscriptions (Include any ICT based for your subject)	**Cost**	**Intended Impact**
Developing Experts - Developing Experts Ltd	£440.00	Children have greater understanding of the different roles/jobs that scientists have - increased science capital. Enhance teaching – use of preselected videos, images, vocabulary, quizzes. 8 classes @ £55 per class Home involvement.
The Association for Science Education - ASE (Primary School)	£135.00	Enhanced subject leader knowledge plus access to additional, peer-reviewed and updated resources for all teachers.
Total for ICT subscriptions	**£575.00**	

Subject Specific Enrichment	**Cost**	**Intended Impact**
Travelling science show (4 KS2, 2 KS1)	£848.00	Introduce and increase understanding of basic physical processes within science across school – rolling programme
Total for Enrichment	**£848.00**	

Do you have any money left this year that you would like rolling over to next year?	Yes
If yes, what is the reason and intended impact of this?	Buy science books for the school library and for classes. Invest in guided reading science texts.
Total amount requested from 2021/22 budget:	**£250.00**

Please email me once you have completed your bid in the BUDGET folder on Teacher serve, save as : BUDGET Subject Year e.g. BUDGET Literacy 2022 Done

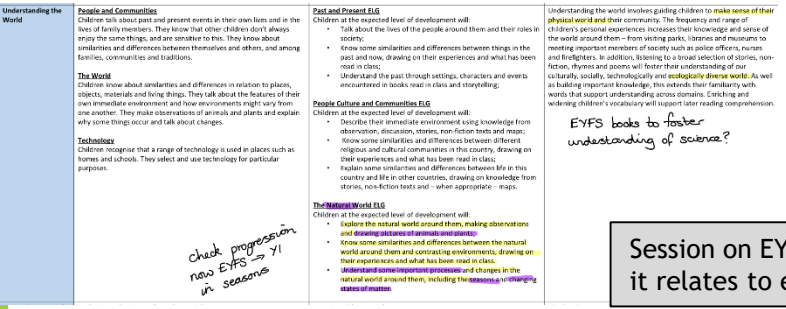
Generous budget for resources, enrichment and ICT. Carry over from previous year for new resources.

- increased science capital through enrichment
- improved text resources (following on from PSQM session recommendations)
- additional circuit resources purchased to improve understanding and expand opportunities for learning (following on from visit by a construction company)

Monday 27th September	KS2 Meet the Teacher/Subject Leader reports

Date	Meeting Focus
Monday 10th January	Pupil Book Study (3:45) Alex Bedford
Monday 17th January	Pupil Book Study (3:45) Alex Bedford
Monday 24th January	Pupil Book Study (3:45) Alex Bedford
Monday 31st January	Subject Budget Bids/Server Clean Up
Monday 7th February	Subject Leadership 1 Emma Turner
HALF TERM	
Monday 21st February	Subject Leadership 2 Emma Turner
Monday 28th February	Parents Evening
Monday 7th March	Science
Monday 14th March	Data/Grade Cards
Monday 21st March	Subject Leadership 3 Emma Turner

Subject leaders have had a lot of CPD this year as it is a focus for the school. Much of it linked up with, and backed up by, the training provided by PSQM. Resources and suggestions particularly for monitoring and assessing children's learning both with and without books.



Understanding the World

People and Communities
Children talk about past and present events in their own lives and in the lives of family members. They know that other children don't always enjoy the same things, and are sensitive to this. They know about similarities and differences between themselves and others, and among families, communities and traditions.

The World
Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.

Technology
Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.

Past and Present ELG
Children at the expected level of development will:
- Talk about the lives of the people around them and their roles in society;
- Know some similarities and differences between things in the past and now, drawing on their experiences and what has been read in class;
- Understand the past through settings, characters and events encountered in books read in class and storytelling;

People Culture and Communities ELG
Children at the expected level of development will:
- Describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps;
- Know some similarities and differences between different religious and cultural communities in this country, drawing on their experiences and what has been read in class;
- Explain some similarities and differences between life in this country and life in other countries, drawing on knowledge from stories, non-fiction texts and – when appropriate – maps.

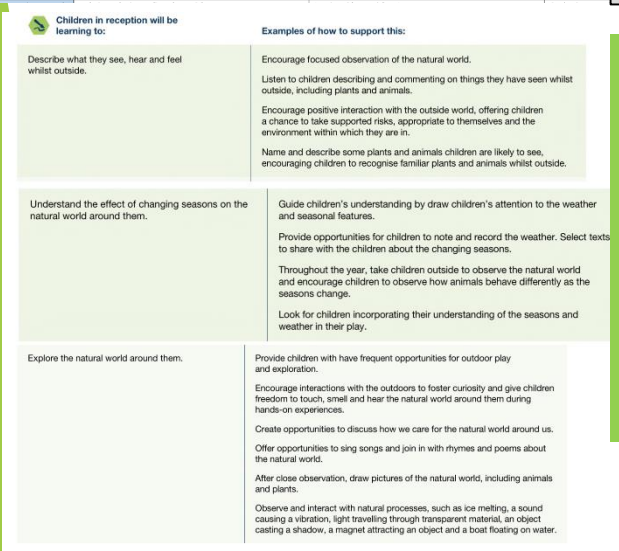
The Natural World ELG
Children at the expected level of development will:
- Explore the natural world around them, making observations and drawing pictures of animals and plants;
- Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class;
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension.

EYFS books to foster understanding of science?

Check progression new EYFS -> Y1 in seasons

Session on EYFS and how it relates to each subject.



Children in reception will be learning to:	Examples of how to support this:
Describe what they see, hear and feel whilst outside.	Encourage focused observation of the natural world. Listen to children describing and commenting on things they have seen whilst outside, including plants and animals. Encourage positive interaction with the outside world, offering children a chance to take supported risks, appropriate to themselves and the environment within which they are in. Name and describe some plants and animals children are likely to see, encouraging children to recognise familiar plants and animals whilst outside.
Understand the effect of changing seasons on the natural world around them.	Guide children's understanding by draw children's attention to the weather and seasonal features. Provide opportunities for children to note and record the weather. Select texts to share with the children about the changing seasons. Throughout the year, take children outside to observe the natural world and encourage children to observe how animals behave differently as the seasons change. Look for children incorporating their understanding of the seasons and weather in their play.
Explore the natural world around them.	Provide children with have frequent opportunities for outdoor play and exploration. Encourage interactions with the outdoors to foster curiosity and give children freedom to touch, smell and hear the natural world around them during hands-on experiences. Create opportunities to discuss how we care for the natural world around us. Offer opportunities to sing songs and join in with rhymes and poems about the natural world. After close observation, draw pictures of the natural world, including animals and plants. Observe and interact with natural processes, such as ice melting, a sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting an object and a boat floating on water.

Chance to see how the EYFS LGs have altered slightly and how this might lead to a need to make adjustments to the year 1 curriculum on seasons next year. Better understanding (for all staff!) of how EYFS assess and how what they do leads into the National Curriculum for science.

Changed focus of monitoring and staff CPD. Greater use of pupil voice through pupil book study – reinforced confidence in teaching and learning in science across the school and how children perceive their learning.

Yarrow Subject Leader: Science Kathleen McKinley	10.12.2021	1.00-3.30pm	TBC	Rachael Webb

Cluster training for subject leaders re-established. Time provided out of class.

Reinforced work doing with PSQM (Rachel Webb is my PSQM hub leader) and later with outside trainers. Reminder of some resources that received a few years back but, with Covid, were not acted upon.

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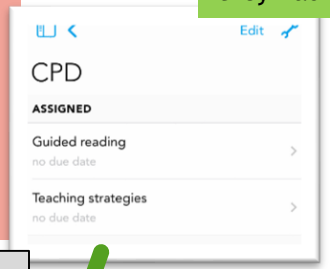
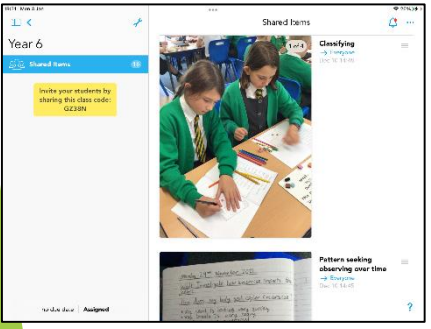
SL C There is an effective monitoring and improvement cycle

- Pupil voice previously undertaken.
- Limited amount of time available for monitoring science – release time in mornings whereas science is in the afternoon.
- Science leaders a success – not possible to hold meetings last year due to Covid but reinstated this year and meetings started.
- Recommendations from training implemented through staff meetings to improve teaching and learning, ongoing process that will be revisited this year due to new staff members joining. Limited opportunities to show sustained improvements over last year two years due to lockdowns and multiple isolation periods.
- Science gained much higher profile through gaining previous PSQM.
- Science summative assessments monitored through brickwall tracker and end of year grades, including statutory end of key stage 1 and 2 and EYFS Understanding the World. Assessment cycle interrupted due to covid – results unreliable due to varying experiences in home learning
- SL training

Pupil book scrutiny undertaken with science leaders from year 3 and year 4 (as a trial run) following on from training.

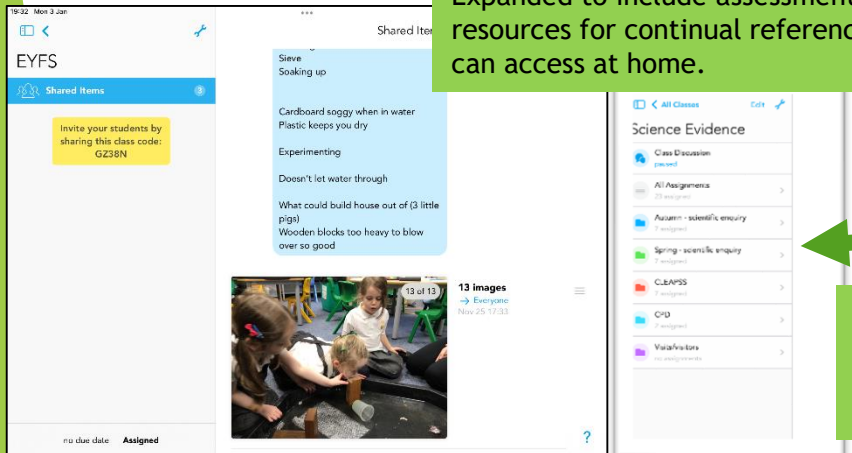
Fascinating to hear children talk about what they had learnt – very knowledgeable and enthusiastic. Good to hear that they don't just mention the fun activities but what they learnt from them. All clear that enjoyed science and it was very apparent that they had learnt a lot.





Folder on Showbie for all members of staff to access CPD resources

Staff able to access resources easily and quickly without having to search emails. All staff can also add any resources or interesting articles etc that they come across for everyone else to use/read.
Expanded to include assessment resources for continual reference and can access at home.



Science Monitoring and CPD Calendar

Month	Subject Leader Action	Monitoring Focus
July/September	• Resource audit	• Ensure resources are up-to-date, working, sufficient and easily accessible
October	• Display review • Pupil voice	• Are displays up to date? Do children use the displays? Can children explain how displays support them as learners? • Gathering views of children in relation to science via questionnaire
November	• 1st – staff CPD 'Five types of scientific enquiry'	• Evidence on displays and on Showbie evidence folder

- Establishment of monitoring/staff CPD calendar
- Pupil voice questionnaires completed in autumn and to be repeated again the following autumn. Analysis undertaken and then to be compared. Already clear that pupils have a much better idea of what science is than 2 years ago and increasing awareness up the school.
- Folders for evidence set up on school Showbie.

Much easier to see what is happening across the school and collect evidence. Have been able to easily monitor types of scientific enquiry being undertaken and establish that pattern seeking is the one that needs more focus with minimal time and effort.

Pupil Voice 2021

What is science? Why do you think it is important to learn science?

Y1
Floating/pushing/ pulling/ so that we know things

Y2
Experiments/knowledge about different animals/science is everything/it is important because lots of jobs need science/ it is important because it helps your knowledge about things

Y3
Science is:
Mixing things together to make something incredible!/Logical answers/Finding new solutions for example Corona virus cure/Facts about things that we didn't know before/Everything is science!/learn about universe/experiments
It's important to learn about Science:
If you want to understand new things like fossils and to help our brains/Helps us understand things including things in the past/Help us get a good job/Learn new things to help us create something new which people might need to make life better/test things so we can find out/help the environment/without science we wouldn't know how the world works

Y4
Science is about our world and how thing work/teaches us about the world we live in/teaches us about animals, plants, materials and about diseases/is biology, chemistry, physics/looking and learning about the world around us/experiments/research/observing things

Y5
Learning about nature and space/experiments to find new things/reactions/make potions and test things/physics/make change in history/gather information for other scientists/understanding of scientific processes/without science can't make stuff like cakes/learn about surroundings and build from that/Where you learn about different topics/Experiments/Study of the world and reactions/Study of chemistry, biology, physics/Learning about ancient geography/Also about maths and marine biology and everything/Doing tests and recording results/Experimenting with different things/To get a job as a scientist/Helps you understand more about things that you don't normally learn, space and fair tests/Science is important for all jobs, you have to know all subjects/So we know what happened in the past/Science explains a lot about things that people didn't understand before everything – the world and how things work/how and why things work/experiments/how things function/the study of questioning about humanity and the study of life (Biology)/about investigating things/we look at the Solar system and Space and forces, astronomy (physics)

Y6
It is important to learn about Science because: we learn about our world, universe and life because it is where we live/it helps us to decide if we want to take a job involving science – e.g. scientist, doctor, nurse, dentist etc/if we learn biology it helps us to understand about our bodies so we could become a doctor/an important career because you may make an important discovery e.g. vaccines

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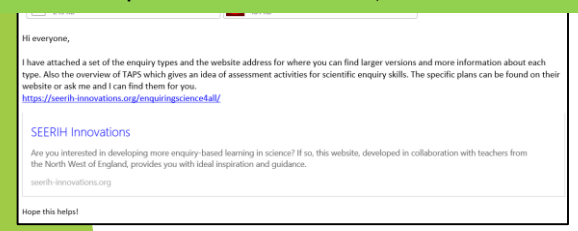
T A There is engagement with professional development
L A The purpose and process of scientific enquiry

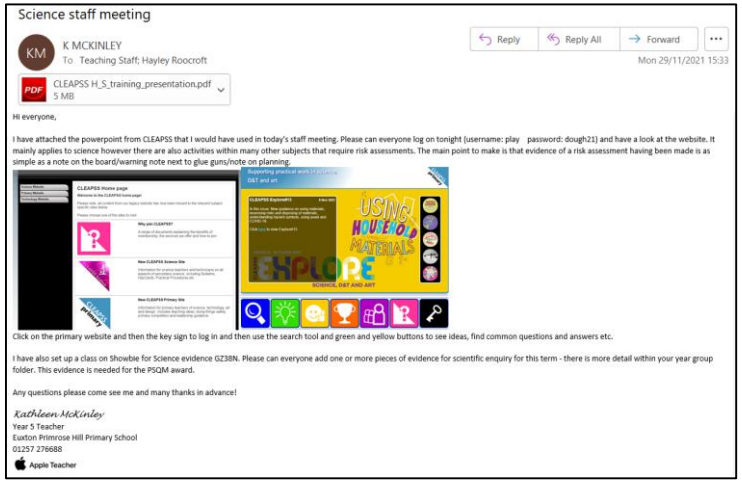
Very limited CPD undertaken in last 2 years due to lockdown and other restrictions imposed by Covid.

Time in staff meeting to recap on the five types of scientific enquiry and share resources including common display symbols for the whole school to use. Further information provided via email.

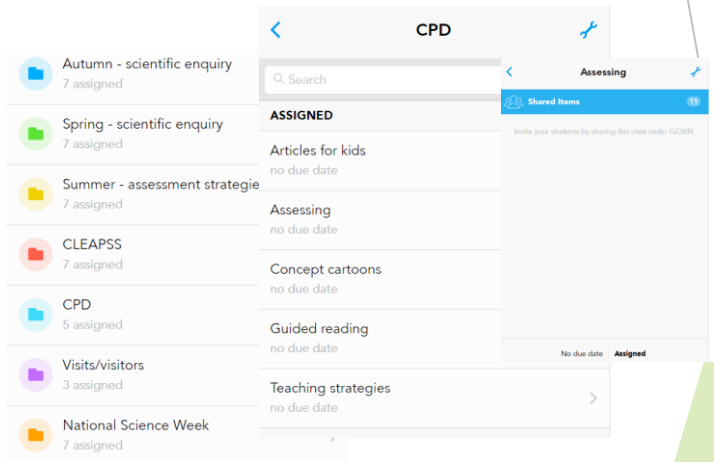
Symbols on display in classrooms and teachers clearer on the different types (as evident in evidence provided on Showbie).



Planned time in staff meeting to revisit CLEAPSS, let all staff know of new log in details and how it can be used. This had to be sent out via email instead due to Covid within school and staff absent.



Staff meeting on using PLAN resources for assessment – worked within year groups to moderate for secure and not secure. Assessment strategies placed on Showbie for all to share.



Staff more familiar and confident with using PLAN resources to assist with their assessment of children. Evidence of strategies used to assist with judgement readily available to SL and all staff through Showbie alongside all resources from staff meeting.

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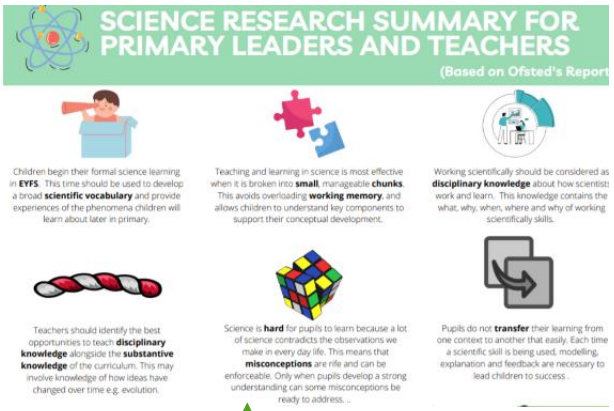
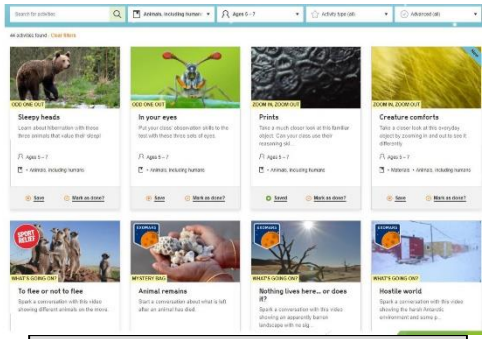


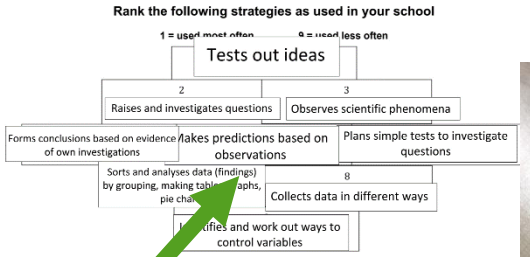
Staff updated with current Ofsted research on science in primary schools.

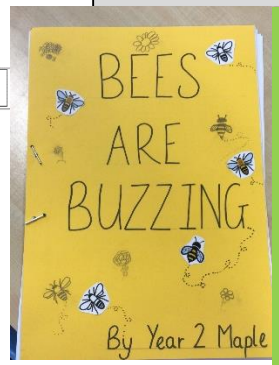
Staff more aware of the reasons behind achieving PSQM and the rationale behind the CPD for the year.



Revisited Explorify and reminded staff of its usefulness and impact on children's learning and discussion skills.

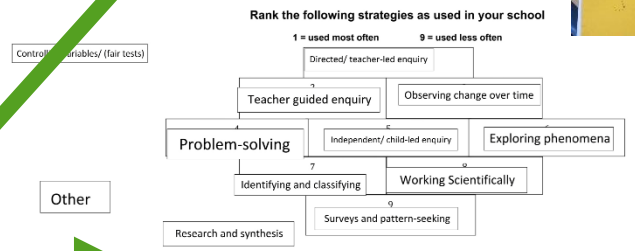
Provided variety of resources for linking reading and science including WhizzPopBang comprehensions, texts with science link and diverse representation. Also information on STEM careers linked to science topics.

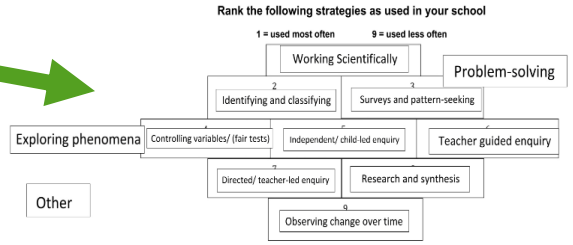




Mostly anecdotal evidence as to positive impact on observational skills and questioning as currently verbal. Did lead to year 2 altering English planning to write explanation texts on bees inspired by an Explorify activity.

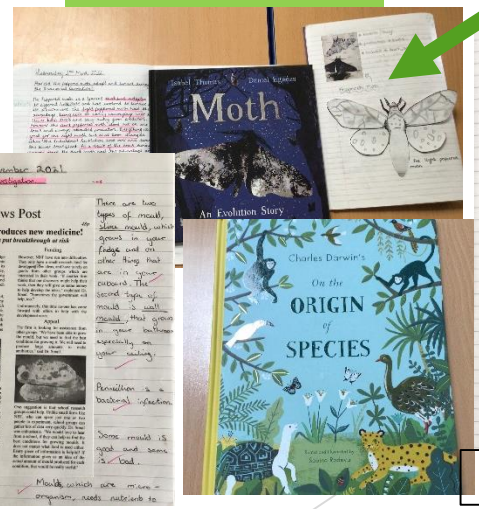
Not been time to alter planning for most year groups to incorporate more texts however year 6 have really taken the idea on board ad used several different books as 'hook' into the science topic.

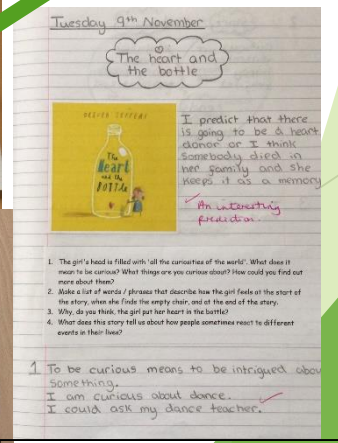


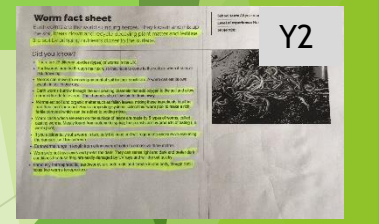


Staff discussion about teaching strategies and scientific enquiry – year groups worked together and SL facilitated discussion between all staff.

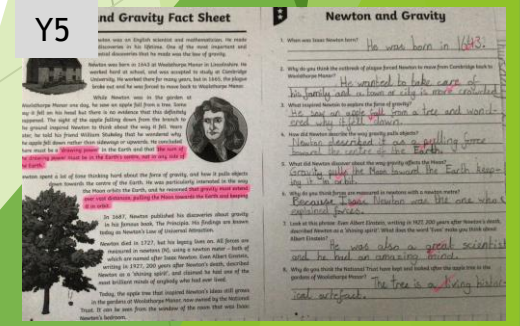
Led to interesting points being made about varying importance of different strategies depending on if EYFS, KS1 or KS2 and necessity to take these into account when planning teaching strategies.







Y2



Y5

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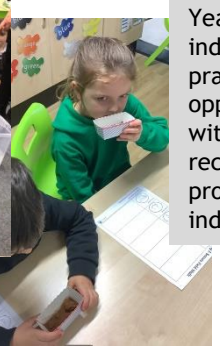
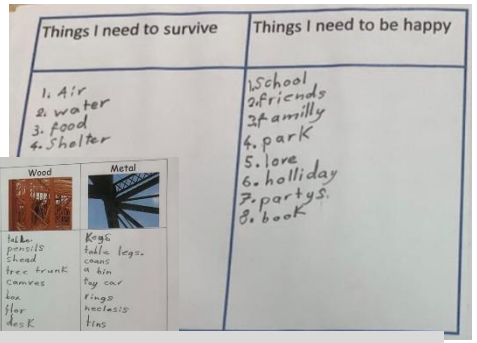
T B Teachers use a range of effective teaching and learning strategies

- Monitoring of planning to ensure that ideas/resources that constitute best practice are being incorporated and there is some evidence of **outdoor learning.**
- Book scrutiny with a clear focus – positive points and things to consider included as well.
- Pupil interviews (pupil voice)- ideas to be considered by science leaders. Key questions to be monitored over next few years to see if 'what is science?' and other answers become clearer/more detailed.

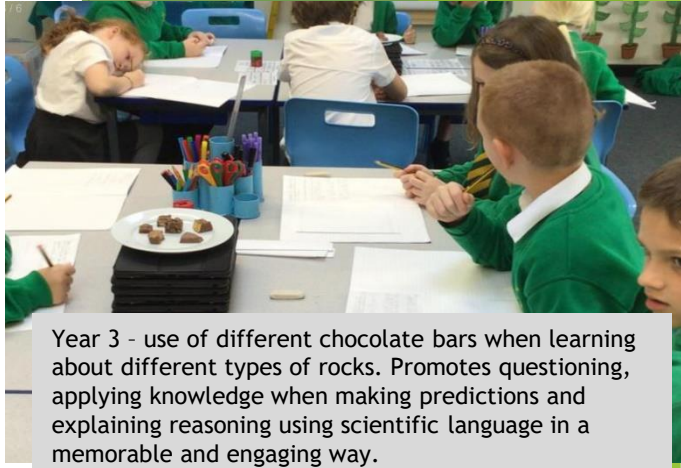


Year 1 – class demonstrations when making a point clear to everyone.

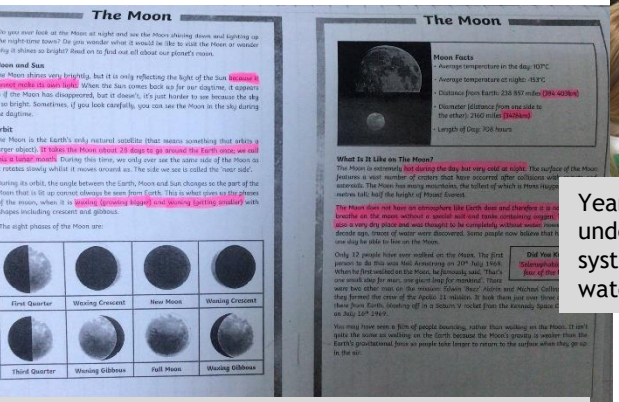
Year 1 – individual practical opportunities with clear recording to promote independence.



Year 2 – linking materials to practical, everyday uses and survival needs.



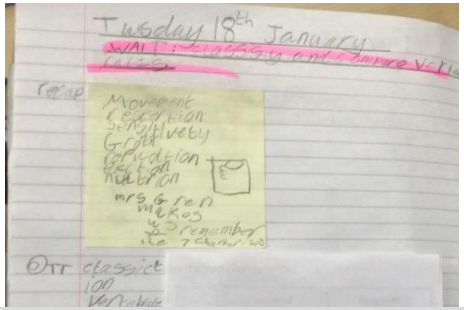
Year 3 – use of different chocolate bars when learning about different types of rocks. Promotes questioning, applying knowledge when making predictions and explaining reasoning using scientific language in a memorable and engaging way.



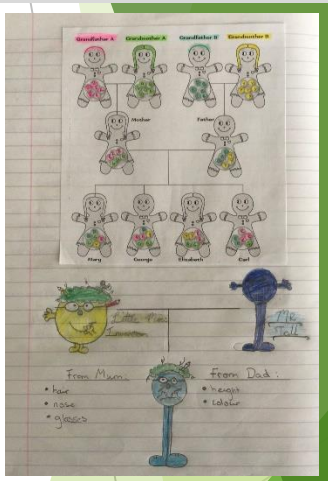
Year 6 – use of technology to enhance understanding of how the different systems within the body fit together. Can watch the processes in the body occur.

Year 5 – guided reading text to enhance understanding and knowledge about the phases of the Moon. Each topic to have a linked text.

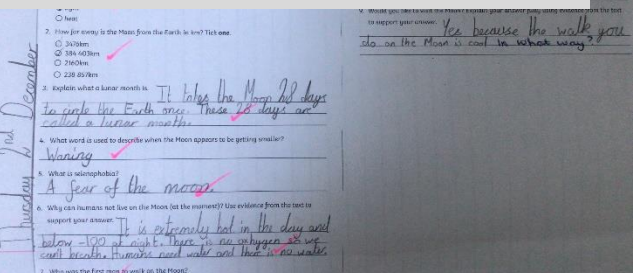
Year 5 – creating pulley system during lesson on pulleys during forces topic.



Year 4 – recapping key learning from previous lessons. Part of recommendations from staff CPD on book studies.



Year 6 – use of gingerbread men and Mr Men/Little Miss to teach about inheritance.



Year 3 – creation of life cycle wheels to show the different stages.

EYFS – exploring the plants and animals to be found outdoors.

Year 5 – applying knowledge of chemical reactions and altering variables to create the most powerful rockets (irreversible changes).

From pupil book scrutiny and conversations with children, it is clear that children both enjoy science and have a good understanding of the basic principles of each topic. They are able to talk about what they learnt, as opposed to just what they did. Clear from pupil voice that the answers to the question 'What is science?' have become far more detailed and children link science to their lives and everything around them.

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T C There is regular and safe use of up-to-date quality resources

- Science resources were already plentiful, stored in labelled boxes and replenished whenever necessary. Annual budget always approved – additional resources can be requested if needed.
- Large outdoor area currently needs improving – this is a school development project not specific to science.
- Lack of science texts that are up to date and available to all children.

Children are able to use our woods and outdoor areas to enhance their knowledge and understanding of the natural world.

'The blue tit has blue on it's head but the great tit has black on it's head. Look I can see some berries there the birds might eat those.'
Florence EYFS
'I can see a bird nest at the top of the tree. They can lay their eggs in there.'
Rhianna EYFS

Changing materials in year 5.

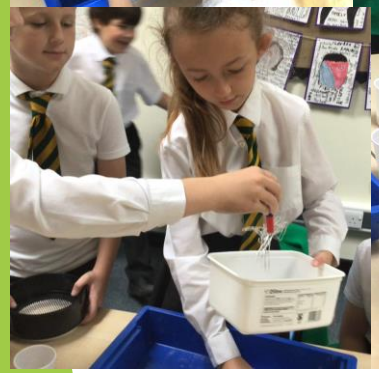
Use of funnels and measuring jugs for creating 'blood' in year 6

Last year, the school was switched round in terms of KS1 and KS2 so everything was completely reorganised in terms of storage. Specific topic boxes were moved into classes that cover that topic and general resources stored in a science cupboard. Was also an opportunity to sort and identify areas lacking resources.

Children have many opportunities to undertake practical activities, working in groups and partners. The range of resources allows for lots of different ways to investigate, measure and record.

All KS2 pupils have individual iPads that can be used for research, recording, timing, measuring (light and sound apps) and much more.
All KS1 classes have access to a class set if needed.

Use of powerful LED torches when investigating in year 3. New torches purchased so at least one for each pair.



Use of AR to aid in learning about the circulatory system in year 6.

Use of pipettes for making potions in EYFS.

Gear sets made by a relative for use in Y5 forces topic.

Use of magnifying glasses when investigating rocks and soils in year 3.

IMPROVEMENTS

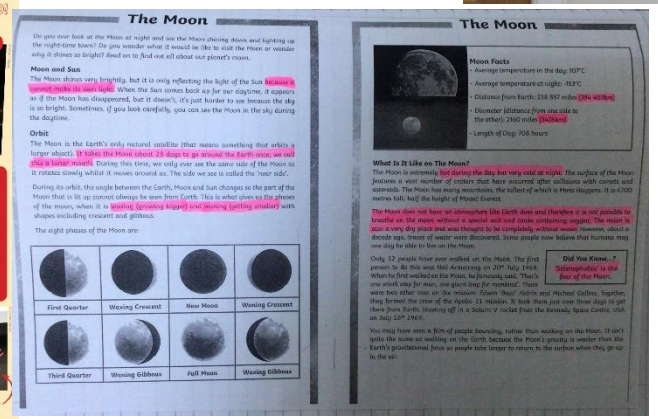
Circuits kits purchased for small groups after request from teachers following visit from local construction company.

Collaboration with eco club to share resources for growing plants.

Total revamp of science books within school library – sessions with KS1 and KS2 science leaders to replace old books and better organise so that children are more likely to take them out to read. Liaised with librarian to monitor which books were taken out and worked with science leaders to increase uptake.

Additional resources have been purchased to allow for more focused science in EYFS (class sets of mirrors and magnets) and improve teaching of the weather in year 1 (outdoor thermometers and rain gauge).

Increased use of short guided reading texts related to science/scientists - Whizz Bang free resources as initial starting point plus other online resources.



Purchase of science books for school library budgeted for. Displays to be created at key points in the year e.g. National Science Week, National Space Week, International Day of Women and Girls in Science.

Work in progress

Outdoor area enhanced for both outdoor teaching and learning.

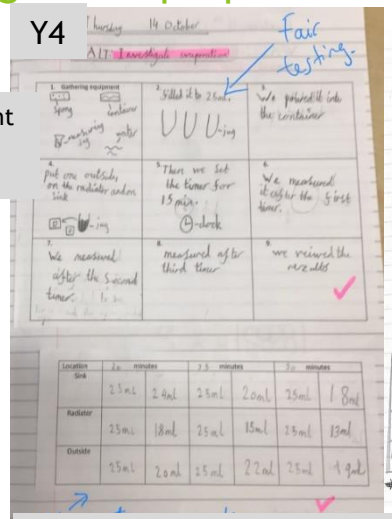
L A There is an understanding of the purposes and process of scientific enquiry

OBSERVATION OVER TIME

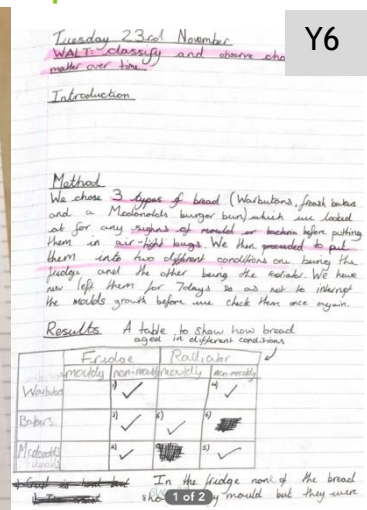
Y1

Photos taken at different times of year for comparison

Y4



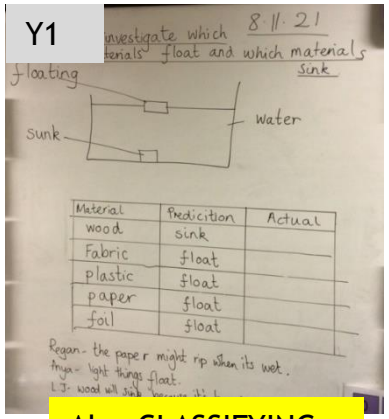
Y6



WS: setting up test + observing and measuring + recording data + interpreting and communicating results

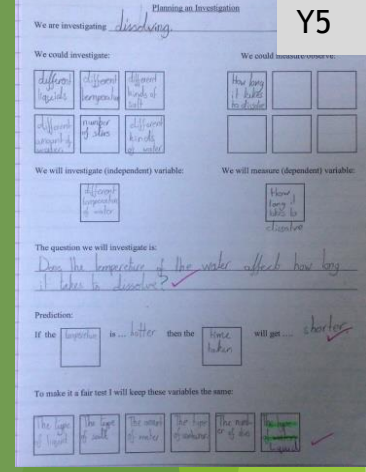
FAIR/COMPARATIVE TEST

Y1



Y3

Y5



Also CLASSIFYING

WS: asking questions + predictions + setting up tests + observing and measuring + recording data

The Association for Science Education
Promoting Excellence in Science Teaching and Learning

What is scientific enquiry?

Scientific Enquiry describes the processes and skills pupils should be taught and use, to find out more about the world and how it works. Arguably, all children (regardless of where they live and the curriculum their schools follow) should carry out scientific enquiry – skills and processes apply beyond formal curricular boundaries. It's about good science, after all!

The publication 'it's Not Fair…or is it? - Turner et al, takes the view that:

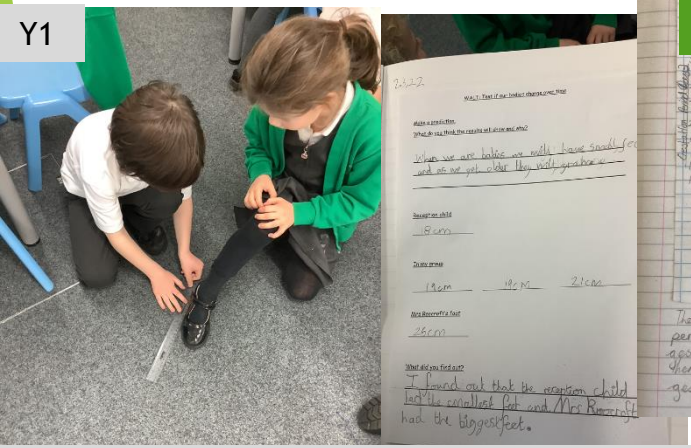
'Science enquiry is what children do in order to answer scientific questions about the world around them'.

As a definition of scientific enquiry, this works enormously well. Opportunities for scientific enquiry should be located centrally within any science curriculum, so that children gain a deeper understanding of science concepts in the context of questions they ask and answer.

- 2 sessions of CPD have been provided, refreshing teachers' knowledge of the 5 types and of the importance and purpose of science enquiry.
- School is a member of ASE and resources and ethos have been shared with staff in staff meeting CPD.

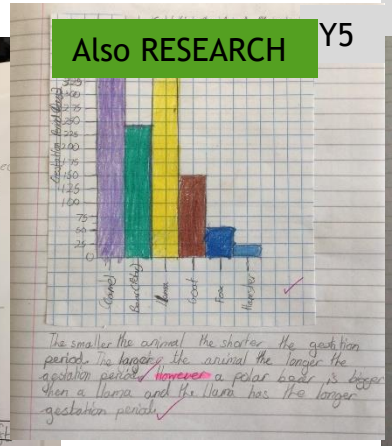
PATTERN SEEKING

Y1

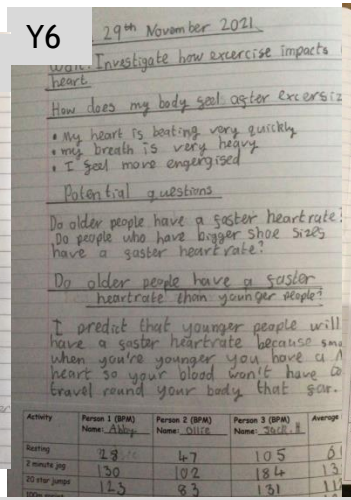


Also RESEARCH

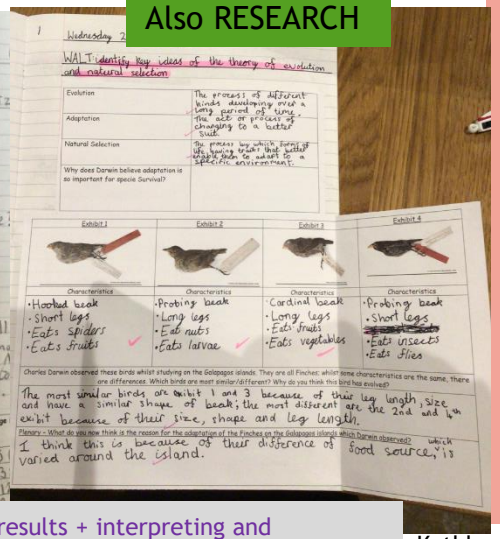
Y5



Y6



Also RESEARCH



WS: asking questions + making predictions + observing and measuring + recording data + interpreting and communicating results + interpreting and communicating results

- All teachers have a Key Learning Indicators of Performance (KLIPs – from Lancashire LEA) document for each topic which details the key knowledge and understanding and working scientifically objectives to be covered in that topic.
- The 5 types of scientific enquiry have been spread out over the topics to ensure that each type is undertaken a minimum of once over the course of the year, with teachers repeating as appropriate and necessary.
- Majority of teachers are familiar with the 5 types of enquiry.
- Children do not consistently have the opportunity to ask and investigate their own questions across all year groups – teacher directed rather than pupil led.
- Children not always able to say what type of enquiry they have used or what the different types are.
- Clear symbols (from enquiringscience4all) for the different enquiry types on display in some classrooms.

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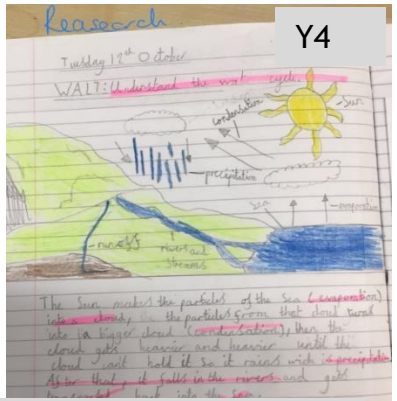
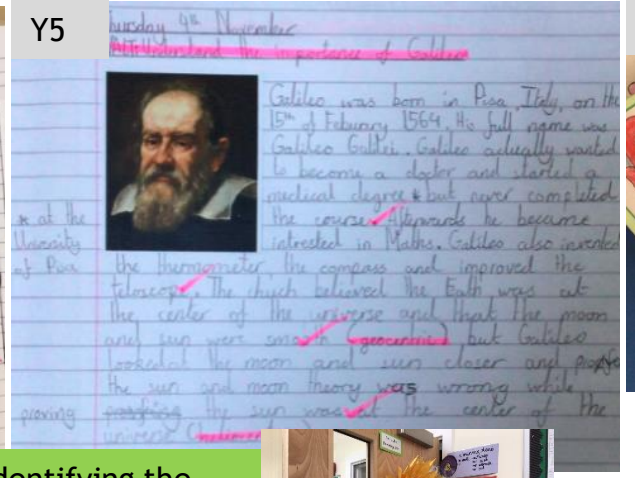
RESEARCH

Y2

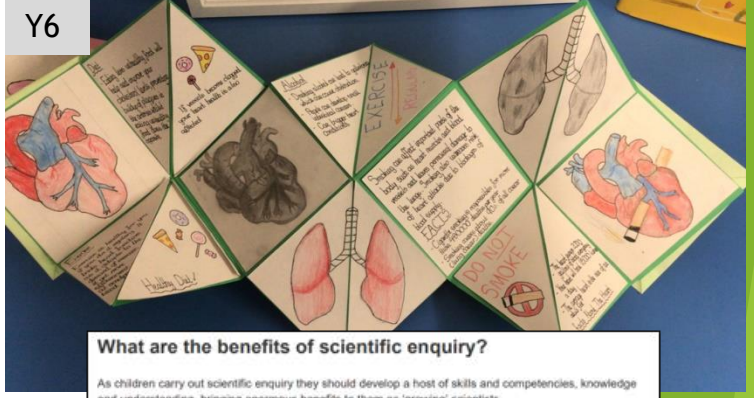
Y4



Y5



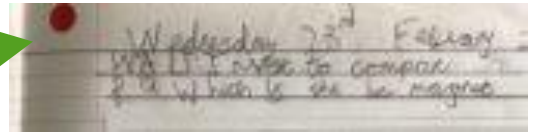
Y6



WS asking questions + recording data + interpreting and communicating results + evaluating

Clear from the evidence provided by teachers that they are confident in identifying the different types of scientific enquiry and that all different types are being carried out. More work perhaps needs to be done to ensure that all teachers have a set of practical activities for all types as pattern seeking is less frequently used and observation over time more common in KS1.

Next steps: using idea from PSQM session participant, train science leaders to use coloured stickers/dots to identify the types for themselves and then teach their class (will enable for quick monitoring in books of children's understanding of the different types). Recent monitoring has shown that children still very unsure of the different types – science leaders to take more charge in each lesson as something they can take ownership of.

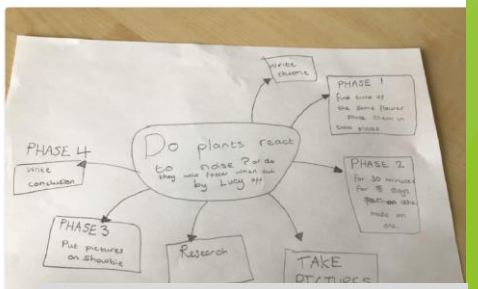


What are the benefits of scientific enquiry?

As children carry out scientific enquiry they should develop a host of skills and competencies, knowledge and understanding, bringing enormous benefits to them as 'growing' scientists.
Scientific enquiry increases children's capacity to:

- Problem-solve and answer questions. Rich opportunities are provided where children explore their own ideas, develop and deepen conceptual understanding.
- Work with independence. Thinking and reasoning is nurtured alongside a host of qualities, including resilience, determination and confidence.
- 'Be a scientist'. A necessary toolkit of practical skills is developed and added to over time.
- Communicate effectively. Technical and scientific vocabulary is learned, practised and used, as children communicate evidence in a variety of ways, often with different audiences in mind.

HOW DO PLANTS REACT TO NOISE:
My theory is that plants react to noise because I think that they seem to need sunlight so I think that plants can hear in some way the music/ noise.
I AM DOING OBSERVATION OVER TIME.



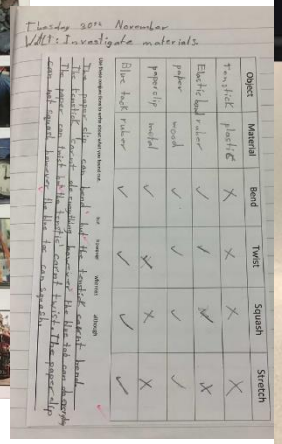
Homework in year 5 – asked to investigate their own question over half term in relation to plant life cycles

IDENTIFYING AND CLASSIFYING

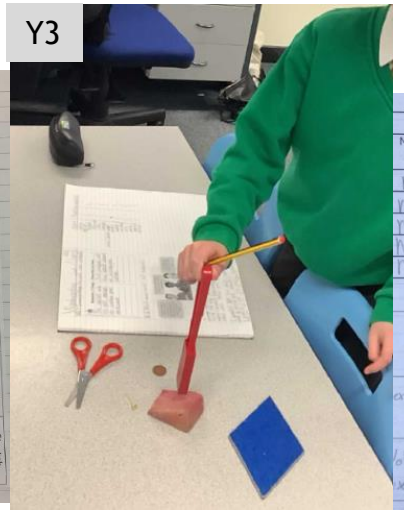
EYFS

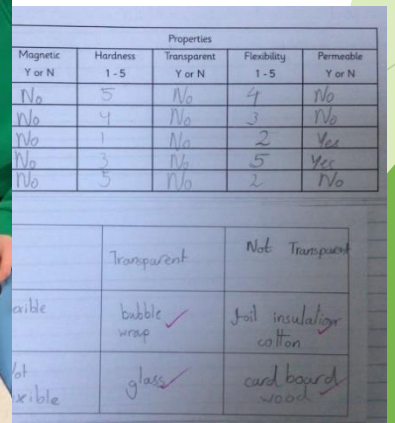
Y1

Y2

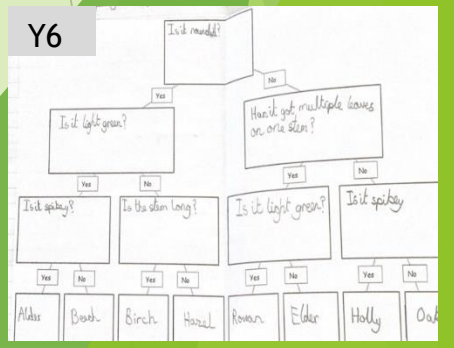


Y3





Y6



WS observing and measuring + recording data + interpreting and communicating results

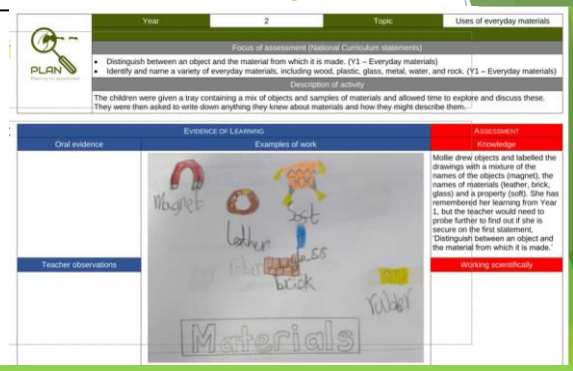
L B There is a shared understanding of the purposes of science assessment and current best practice

- All teachers have a Key Learning Indicators of Performance (KLIPs – from Lancashire LEA) document for each topic which details the key knowledge and understanding and working scientifically objectives to be covered in that topic.
- Science summative assessments monitored through brickwall tracker and end of year grades, including statutory end of key stage 1 and 2 and EYFS The Natural World (was 'Understanding the World').
- Assessment cycle interrupted due to covid – results unreliable due to varying experiences in home learning.
- Teachers regularly use different approaches for science assessment from 'formal' mini tests to informal discussion in the classroom.
- Some teachers using recommended practices from training – not yet embedded across school and new teachers need session to go through resources.
- Topic assessments available for SL to look at to monitor areas of strength and weakness as well as end of year judgements – this was put on hold during lockdown as varied home experiences.

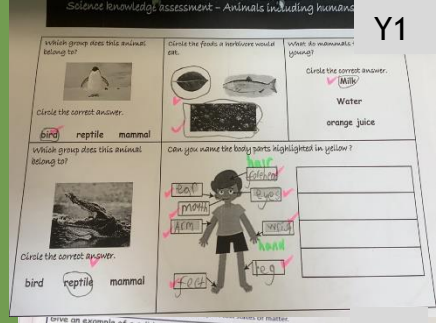
Staff meeting on use of PLAN resources for assessment as well as sharing of ideas for assessment from PSQM/cluster meetings.

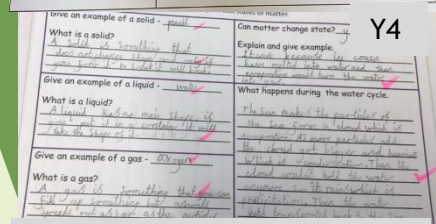
Ways of assessing

- Quizzes
- Annotated diagrams
- Writing in own words
- Concept cartoons (show PowerPoint)
- Odd one out
- What if...?
- PMI
- Create/invent/design
- Stories
- Posters
- Loop cards
- Taboo
- Testbase
- Think mats



Majority of staff were already familiar with PLAN resources and used them for their planning with an emphasis on opportunities for assessment. CPD will embed this practice and encourage use of multiple forms of assessment.





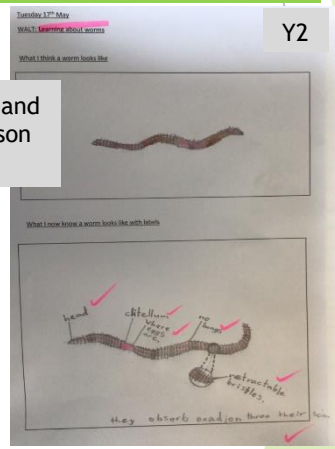
Post topic assessments based on knowledge organiser end of unit questions

Year 5 – Socrative quizzes to be used during subsequent topics to ensure 'sticky learning' of previous topics (this one taken 3 months after topic and to be revisited over the following few weeks). Also used as part of start and end of topic assessments. Initially both Y5 classes and then to be encouraged across those classes in KS2 that have access (who all have individual iPads).

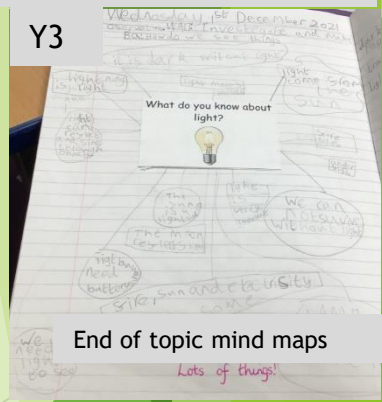
Soon became very clear that knowledge and understanding of certain topics e.g. materials (identified by a local high school as an area of weakness), not embedded. Allowed for additional teaching and recap. In addition, had the surprising outcome of showing that two autistic children actually had a better retention of certain key pieces of knowledge than had been anticipated or shown in class.

Staff use a variety of ways to assess science, both formative and summative, based on experience and previous CPD.

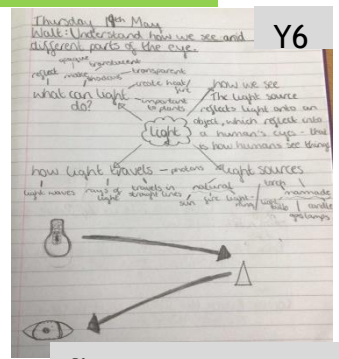
Beginning and end of lesson diagrams



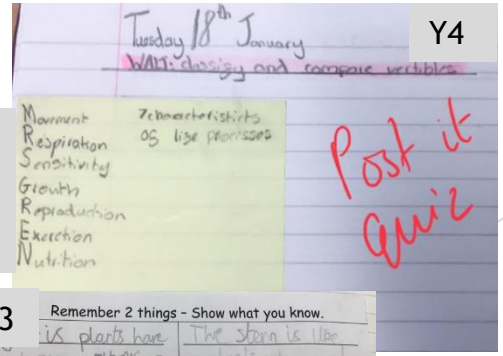
The different forms of assessment allow children to show their knowledge and understanding in different ways, based on how far along in a topic they are, their age, their ability with formative of equal or greater weight than summative.

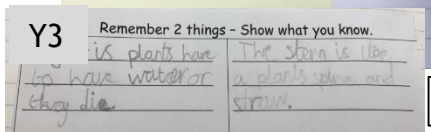


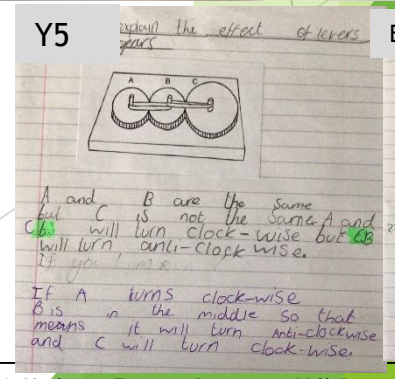
End of topic mind maps

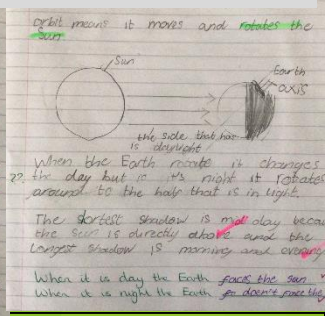


Start of lesson - previous learning assessment









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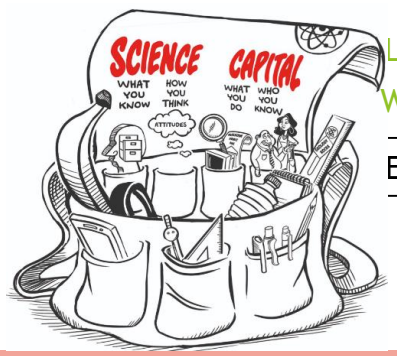
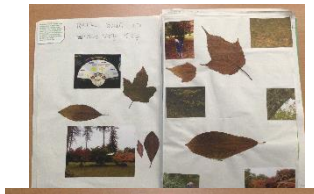


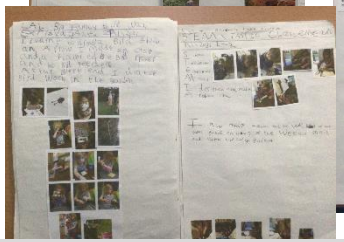
L C There is an understanding of the importance of, and strategies for, developing all children's science capital

WO B There is provision of a variety of opportunities that deepen and extend learning

- Audit undertaken of parents/families and staff to see whose job/hobby involved any of the STEM subjects. Those parents then contacted and invited in to visit and work with classes during the year, and particularly National Science Week, to increase children's science capital and allow them to connect science with everyday life.
- National Science Week – 'science selfie', and science poster competition
- Previous staff CPD on science capital and working scientifically
- Travelling scientist to continue with visits.
- Y5 class had attended Lancashire Science Festival.
- Science Leaders for every class – raise profile of science and encourage questioning.
- Area on website/weekly newsletter to point parents towards science events.
- Developingexperts.com KS2 staff have access to online resource which includes interviews with scientists working in different disciplines.

Evidence on school website – news blogs





One KS1 child has produced an entire book with all of her Children's University science challenges in!

British Science Week 2022 – Poster Competition

As part of the British Science Week celebrations, pupils will be taking part in its national poster competition. The theme is based on creating a poster all about **growth.** For more information about the competition please find the attached information. Some teachers may decide to take part in the competition as a class or pupils may want to do a poster themselves – there is not a limit on the number of entries pupils can submit. There will be prizes for each class and the best 5 entries in the school will be submitted to the national competition. The deadline for entries is **Friday 1st April 2022** and they should be handed into either Miss McKinley (Year 5 Olympus Teacher) or the class teacher.

Y1 – children shared what they had been doing at home. Children looked at pictures of the Moon to see what he was looking at and this promoted link between home and school learning.

Children's University weekly challenges often include science based activities

Children's University masterclass on Space Weather. Linked with Earth, Sun and Moon topic in Y5 and extension of learning for Y6.

Children's University offers a fantastic opportunity for children (both those taking part and those in the classes that have taken part in the zoom masterclasses) to expand their science capital and deepen and extend learning.

- Participation in Children's University – take part in various zoom sessions across the school and activities included on Wednesday Weekly that are linked to science.
- Travelling scientist to continue with visits focusing on physics topics
- Science Leaders for every class – raise profile of science, improve resources (particularly books) and work with SL to share good practice.
- Developingexperts.com membership continued
- BAE Systems not currently accepting school groups.
- Participation in National Science Week – prizes awarded for each class for the poster competition. Winners chosen by science leaders.
- Parents signposted to Lancashire events.
- Children in year 5 regularly read First News and share science news

Children really enjoy the science show as it brings science to life, is full of experiments that they can do at home and is very interactive. Teachers report better understanding of physics concepts and it is useful to refer to when these topics are then covered in class.

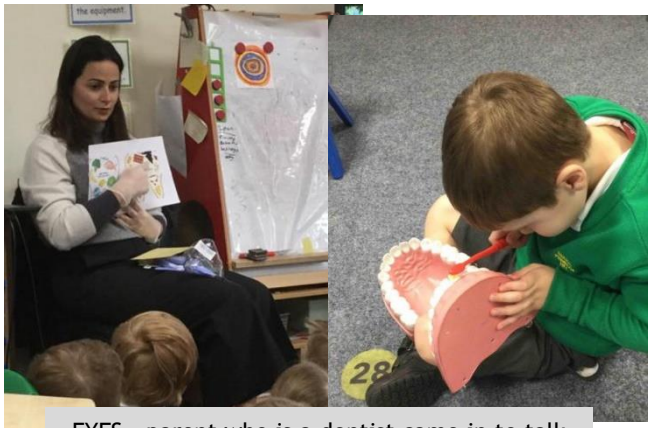
Events in the Local Area

Lancashire Adult Learning – Free Family 'Grow Your Own' Gardening Events

Do you fancy giving 'grow your own' a go with your family but not too sure how to get started? If so, please see the attached flyer for information about Lancashire Adult Learnings FREE virtual sessions aimed at both adults and families. The following online sessions are available. Sow and Grow (Adults) , which takes place on Thursday 19th May click here to enrol and Sow and Grow (Families), which takes place on Wednesday 6th June click here to enrol.

Kathleen McKinley – Euxton Primrose Hill Primary School

Audit undertaken of parents/carers to see who would be able to visit/zoom in (several parents did zoom in last year when visits were not allowed) – not restricted to STEM as working with PSHE subject leader to increase awareness of jobs in general as well. Visitors have included: dentist, finance manager, policeman, high school teacher specialising in infectious diseases, paediatric dietician, HMRC Inspectors, paramedics, A&E nurses, NHS manager, someone working in development of medical devices, network developer, Military Police, mental health specialist and construction company (in person session on circuits and zoom call about health and safety). Visits are spread out across year groups so that each class has at least 3 visitors in the year (usually at least 2 STEM).



EYFS – parent who is a dentist came in to talk about oral health and hygiene. Part of Managing Self.

Like when showed famous nurses like nurse in the army. Showed us what happens if break wrist. Want to be a nurse to look after people. Y1 girl

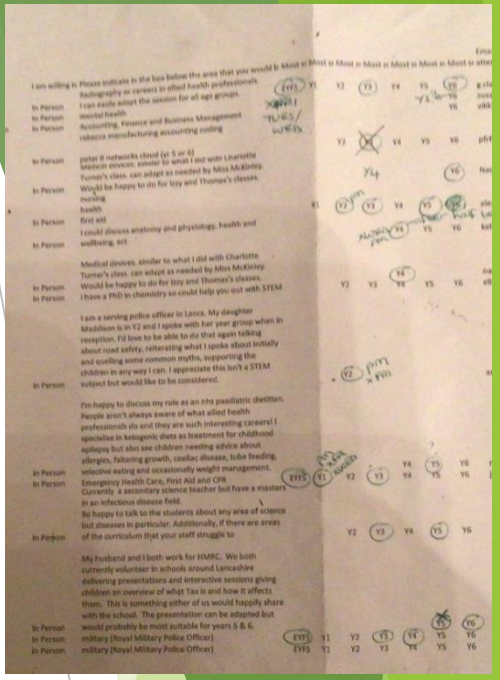
Explained what nurses job was, how heart beats, what they had to do , how they trained. Have to be very good at listending. Y3 girl

Detailed in their answers and told us about nurses in history. Made people think about being a nurse. Y3 boy

Y1 – parents who are both A&E nurses visited to talk about nursing and their jobs. Links to learning about the human body.

Y1 – visit to Farmer Ted's identifying and classifying animals.

External visits provide the opportunity to see nature and wildlife up close in a way that is not possible in school – for many children it is the first time they have seen many animals in real life. Visitors to school bring an insight into how science is applicable to the world and is used in all manner of professions – it opens the children's eyes to possibilities for the future.



Y5 – parent who is a paediatric dietician came in to talk about her job. Built on knowledge from Y3 (digestion and healthy diet) and Y4 (what is needed for growth).

Hi Miss McKinley

It was no problem at all, I enjoyed my visit and it was lovely to have so many insightful questions. I think Year 5 asked better ones than some of our medical students! Thank you for asking me to come in.

Best wishes

Rachael

Year 1 'Bring Yer Wellies' School Trip – July 2022

To support Year 1's Science Learning from the Spring and Summer terms, Year 1 will be visiting 'Bring Yer Wellies' in Hoghton for the day in July. Year 1 Cedar will be visiting on Tuesday 5th July and Year 1 Ash on Tuesday 12th July. The children will be participating in various activities and workshops related to planting, habitats, and fieldwork. If you have not done so already, please can you complete the consent form in ParentMail and make the payment of £12 for the cost of the trip on ParentPay by **Thursday 9th June.** Thank you.

Year 3 'Knowsley Safari Park' School Trip – Tuesday 21st June 2022

KNOWSLEY SAFARI

As part of Year 3's science curriculum, and our topic on 'Animals including humans', a trip has been arranged for both Year 3 classes to visit Knowsley Safari Park on Tuesday 21st June. During the trip, the children will have the opportunity to see a variety of animals and discuss their diets and teeth. As well as a guided tour around the Safari Park, the children will be able to watch different animal talks and visit the animal enclosures. If you have not done so already, please can you complete the consent form in ParentMail and make the payment of £12 for the cost of the trip on ParentPay by **Thursday 9th June.** Thank you.

Hi Kathleen. Thank you for having us yesterday. Your students were fantastic and I was really impressed by their team work. I saw some of the staff taking photos, if possible could we have copies so we can do a little case study and put a post on LinkedIn?

Kind Regards

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It was fun. Got your mind working because of all the switches. Y4 boy

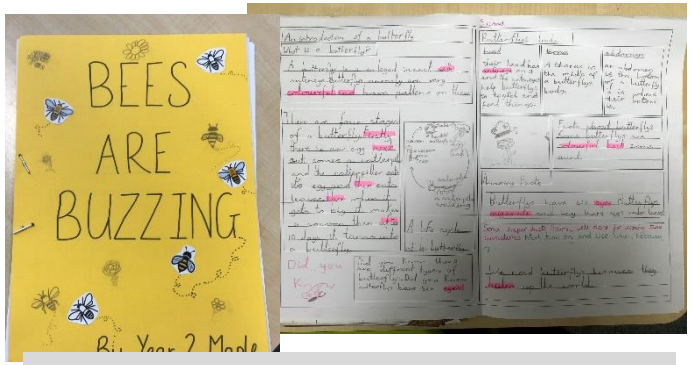
Felt very proud. Liked working with partners. Y3 girl

Y4 and Y6 – construction company talk and opportunity to work together to create circuits. Served as introduction for Y4 and reminder and extension for Y6.

Kathleen McKinley – Euxton Primrose Hill Primary School

WOA There are cross-curricular links between science and other areas of learning

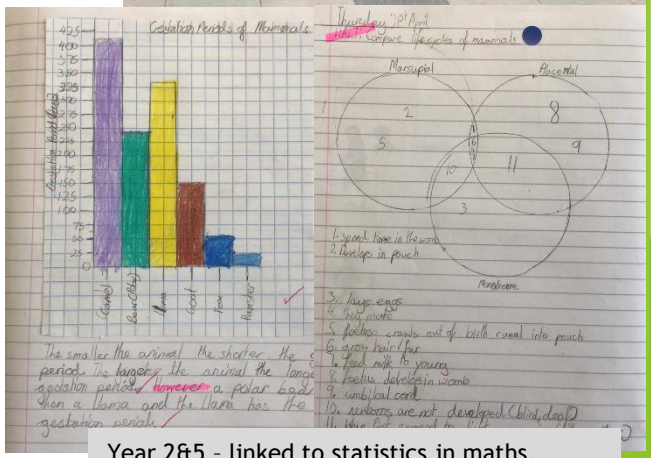
Y3 topic of rocks and fossils - linked to biographical writing about Mary Anning.



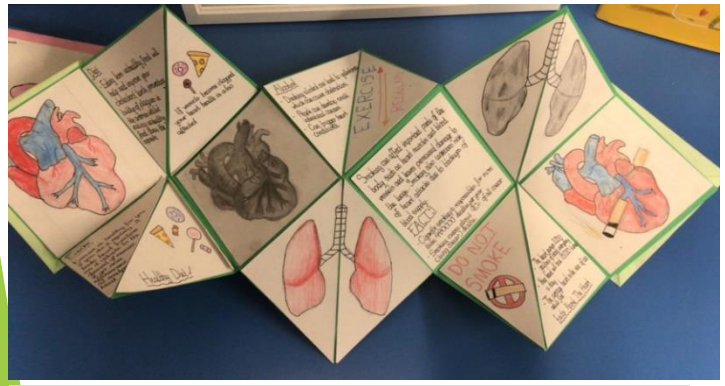
Y2 living things and their habitats – linked with information/explanation texts in English.

Year 4 and 5 music - linked to sound, how to alter pitch in different instruments.

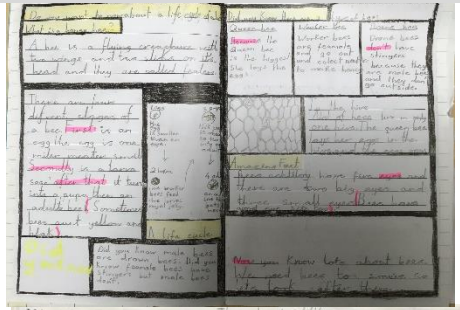
Year 1 materials – linked to the story of the Three Billy Goats Gruff by building a bridge.

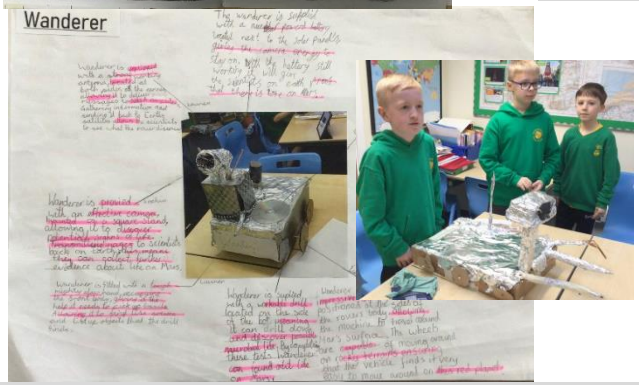


Year 2&5 – linked to statistics in maths.



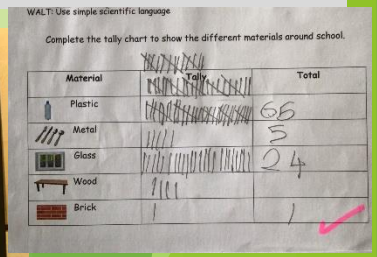
Y6 topic on circulatory system - linked to English topic of non-chronological report writing





Year 5 topic of Space - linked to English topic about explanation based on Mars Curiosity rover (which they then built in groups!)

Year 1 materials – linked to building of a Sukkah in RE.



Year 1 seasons - linked with art.

	Year 3			Year 4		
	Autumn	Spring	Summer	Autumn	Spring	Summer
Science	MATERIAL PROPERTIES Rocks & properties Comparing and grouping How fossils are formed *(link with History Stone/Iron Age)* LIGHT Shadows & Sun movement Light is reflected from a surface Patterns in size of shadows	FORCES & MAGNETS Magnetic forces act at a distance Attraction and repulsion Poles of a magnet *(link with DT 3D modelling)*	PLANTS Identify, locate and describe functions Requirements for growth Transport of water Lifecycle - flowers *(link with Art - painting)* ANIMALS INCL HUMANS Nutrition- digestive system *(link with DT food)* Teeth - functions Construct & interpret food chains Healthy lifestyle - diet and exercise	STATES OF MATTER Changes of state & Water Cycle *(link with Geography rivers SPRING)*	ALL LIVING THINGS - Habitats Grouping of living things Classification keys Changing environments *(link with DT food - fishing)* HUMANS - Skeletal/Muscular System Compare animals	ELECTRICITY simple circuit switches conductors and insulators *(link with DT circuit games)* SOUND How sounds are made by vibrations Pitch *(Link with music- brass)*

Phase maps – some links to other subjects added by SL. A target for next year to look at more opportunities.

Kathleen McKinley – Euxton Primrose Hill Primary School