



Iqra Primary School
PSQM 2018/19
Gilt Award
Portfolio of Evidence



Key

Next Steps

Impact

Parent Voice

Staff Voice

Year Group

Criteria and Principles

Pupil Voice

SL Monitoring

Vision

At Iqra we believe that great science teaching and learning occurs in a hands on - minds on learning environment where pupils make links to real life contexts and develop a life long love of Science

Principles

1. Pupils love Science and develop their natural curiosity



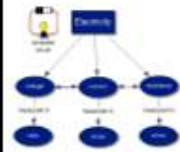
2. Pupils ask questions and make independent choices in scientific enquiry



3. Pupils use a wide range of resources to enhance their learning through practical 'hands-on' activities.



4. Pupils discuss their learning using accurate scientific vocabulary



5. Pupils' thinking and learning clearly progress

KS2 Science Assessments



6. Pupils make cross curricular links in a purposeful way



7. Pupils take part in a variety of enrichment activities



SL1 There is a clear vision for the teaching and learning of science

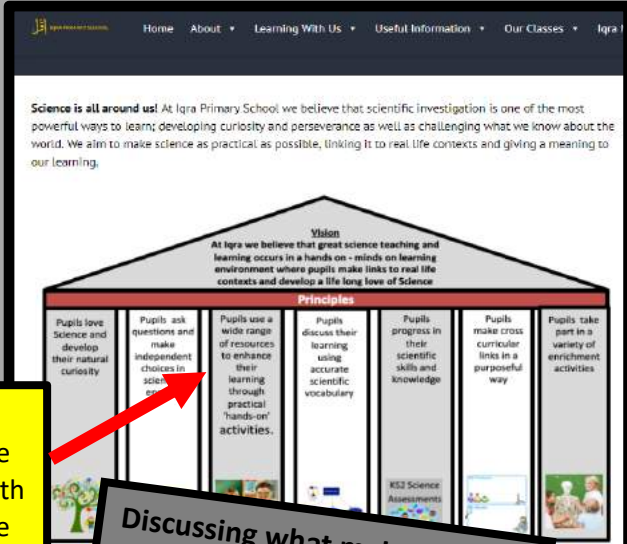
Principles: All

Lesson observations now show that the principles are embedded as staff and pupils are explicitly referring to them. (SL Monitoring)

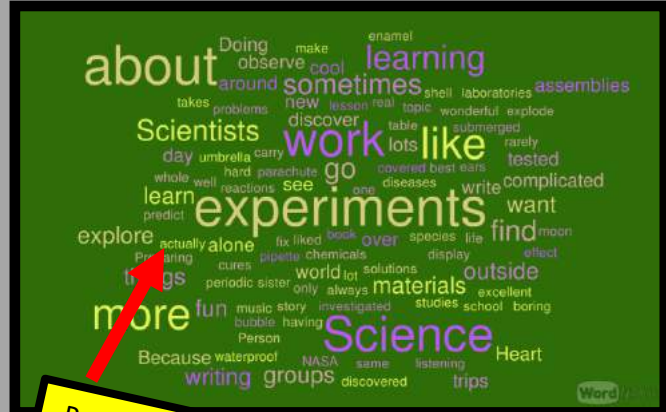
I recently took my child to the natural history museum because I knew they would be learning about rocks in class and wanted them to have a better understanding (Parent)



Staff meeting to establish a shared vision and set of principles (Activity SL1a)



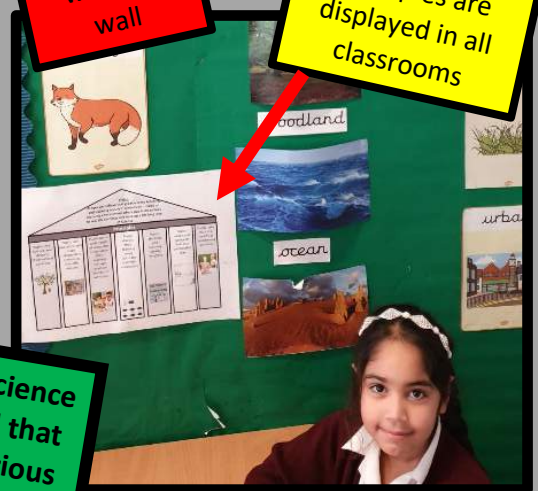
Established principles have been shared with parents via the website



Pupil voice after PSQM

Year 3 working wall

Principles are displayed in all classrooms



At Iqra we think Science should be fun and that it is good to be curious about the world around us (Year 3 pupil)

- Staff Meeting Agenda
25th June 2018
- Introduce PSQM
 - Show staff folder where all evidence is to be uploaded
 - Share science equipment audit list
- Establish Science Vision and Principles
- Findings from activity 'Science is good when...'
 - Share new planning format which is to explicitly include principles in SC and opportunities for practical learning

Discussing what makes science lessons good helped me to adopt a wider range of strategies including using drama to increase pupil engagement (Year 5 Teacher)

Year 6 Success Criteria

Principles now form part of success criteria

Supporting year groups with planning has ensured that all pupils are receiving more opportunities for science

Year group: 2	No. of students: 30
LO: To label the parts of a bulb	SC: I can: 1. Make observations of the insides of a bulb 2. Label the parts of a bulb Principles: I can ask questions and make independent choices in enquiry
Key Vocabulary: living things, plants, photosynthesis, leaves, bulbs	Resources/Homework: Collection of leaves, photosynthesis sheet

Year 2 Planning - Plants

Classroom display for 'The Watcher' book. It includes a character illustration, a list of NC Objectives, and a section for Cross-curricular: Mathematics NC objectives.

NC Objectives:

- To write simple, coherent narratives.
- To use a range of punctuation correctly throughout their writing.
- To use present and past tense correctly and consistently.
- To continue to use the diagonal and horizontal strokes needed to join letters.
- To explain the mean of new words that I know and to find out meanings of words that are unknown.
- To explain what is happening in the text and to predict what will happen next.

Cross-curricular: Mathematics NC objectives:

- Interpret and construct simple pictograms, tally charts, block diagrams and simple tables.
- Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity.
- Ask and answer questions about totalling and compare categorical data.

SL1 There is a clear vision for the teaching and learning of science

Principles: All

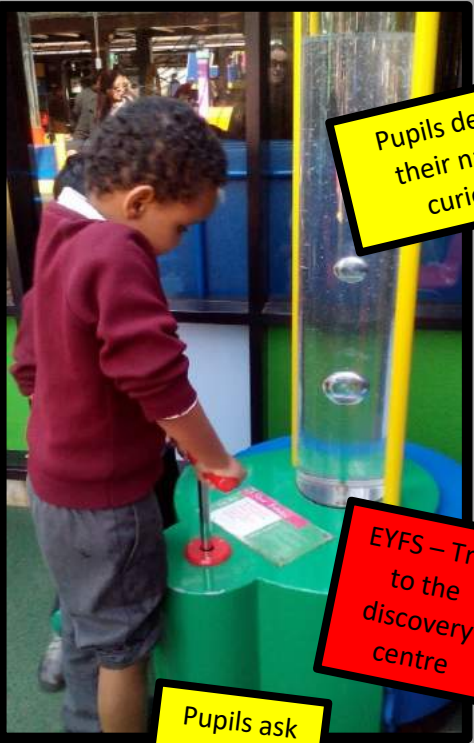
Iqra Principles in Action

Vision
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Principles

1. Pupils love Science and develop their natural curiosity
2. Pupils ask questions and make independent choices in scientific enquiry
3. Pupils use a wide range of resources to enhance their learning through practical 'hands-on' activities.
4. Pupils discuss their learning using accurate scientific vocabulary
5. Pupils' thinking and learning clearly progress
6. Pupils make cross curricular links in a purposeful way
7. Pupils take part in a variety of enrichment activities

KS2 Science Assessments



Pupils develop their natural curiosity

EYFS - Trip to the discovery centre

Pupils ask questions

Pupils use a wide range of resources

Y1 and Y4 asking questions

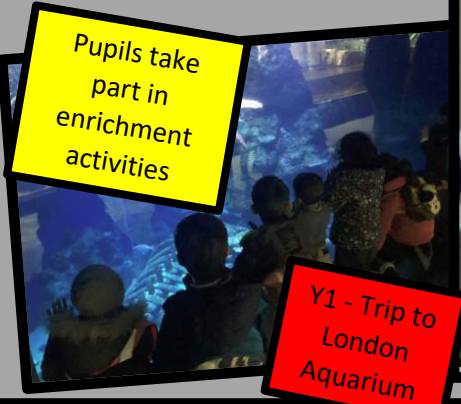


Y1, 3 and 6 using practical equipment



Pupils discuss their learning using accurate scientific vocabulary

Pupils take part in enrichment activities

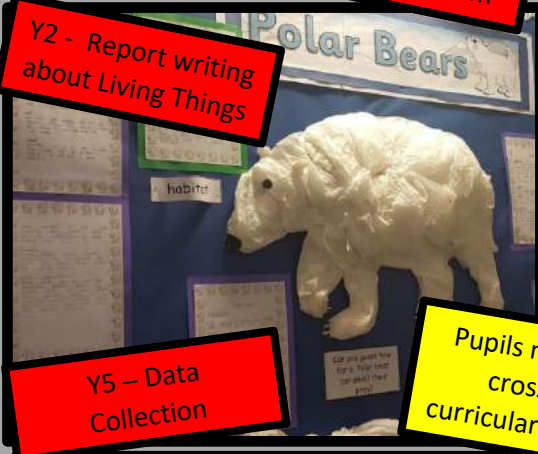


Y1 - Trip to London Aquarium



Y3 - Volcanoes workshop

Y2 - Report writing about Living Things



Y5 - Data Collection

Pupils make cross curricular links

Results

Brief description	Time taken for parachute to hit the ground			
	Test 1	Test 2	Test 3	Average time taken
PARACHUTE 1: large carrier bag	5secs	4.9	5.4	4.93
PARACHUTE 2: small carrier bag with gill	4.9secs	4.9secs	4.7secs	4.83
PARACHUTE 3: large carrier bag with gill	4.1secs	3.8secs	4	3.96

Resistance

The Super Skydiving Company are redesigning the parachute they use to allow people to perform skydives from aeroplanes. They want to make sure the parachute they use is perfect, and allows their customers to fall from the aeroplanes as slowly and safely as possible.

You are going to investigate the helpful effect of air resistance, by finding the best design for their new parachute.

The perfect parachute will be the one that makes a person fall the slowest. It will cause air resistance to push it up with the biggest force.

Possible variables:

Material	Size of parachute	Height of drop	Conditions of drop
Type of parachute	Length of string to attach object to parachute		Object attached to parachute

Independent variable: *type of material size of parachute*

Dependent variable: *length of string*

Controlled variables: *The height of drop, the object attached to the parachute*

Pupils' knowledge and skills progress

Hypothesis:
I predict, that the more the batteries the brighter the bulb. This is because the more number of batteries there are, there will be more energy flowing around the circuit. The electricity will flow around the circuit quicker. Also, the batteries will provide power to give the bulb its energy. If there are less batteries energy will flow slowly around the circuit.

Y6 - Scientific vocabulary

Progression in Science

	YEARS 1&2	YEARS 3&4	YEARS 5&6
Asking questions	Pupils should be taught to: - ask simple questions and recognise that they can be answered in different ways	Pupils should be taught to: - ask more complex questions - use their own ideas to help in answering questions	Pupils should be taught to: - identify scientific questions using a range of scientific enquiries - ask questions that require more complex enquiries - use their own ideas to help in answering questions
Measuring and Recording	Pupils should be taught to: - observe closely, using simple equipment - use simple measuring equipment - perform simple tests - gather and record data to help in answering questions	Pupils should be taught to: - make systematic and careful observations and where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers - record findings using simple scientific language: drawings, labelled diagrams, keys, bar charts, and tables - gather, record, classify and present data in a variety of ways to help in answering questions	Pupils should be taught to: - identify similarities or changes related to simple scientific ideas and processes - report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions - use straightforward scientific evidence to answer questions or to support their findings
Evaluating	Pupils should be taught to: - gather and record data to help in answering questions	Pupils should be taught to: - use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	Pupils should be taught to: - identify scientific evidence that has been used to support or refute ideas or arguments - present findings from enquiries, including conclusions, causal relationships and explanations of the degree of trust in results, in oral and written forms such as displays and presentations

SL2: There is a shared understanding of the importance and value of science

Principles: All

Securing funding for all year groups to plan science related visitors and trips has ensured that pupils understand the wide range of jobs of scientists in the real world.

KS2 healthy eating club



When I grow up, I want to be a dentist (Year 3 pupil)

Securing funding to buy into schemes like FirstNews have ensured that pupils can see how science is important for their everyday lives

Y3

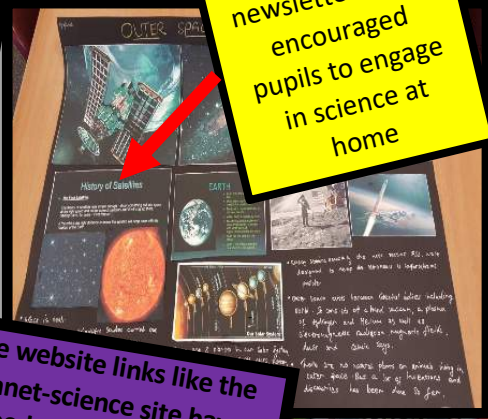


Y1 trip to the discovery centre

Y6 trip to Kidzania

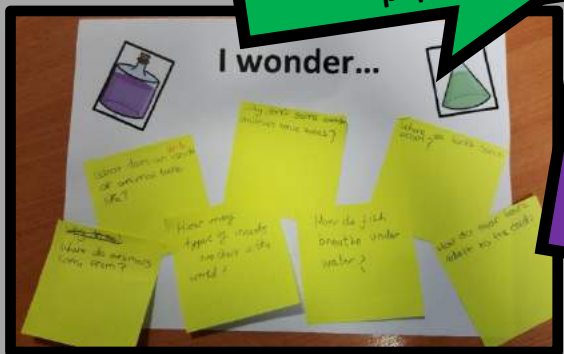
Termly newsletters have encouraged pupils to engage in science at home

Sharing links on the website science page has ensured that families can see how science is important to them



I like being able to ask my own questions and add them to our wonder wall (Year 6 pupil)

The website links like the planet-science site have helped me to increase my scientific knowledge to support my child better. (Parent)



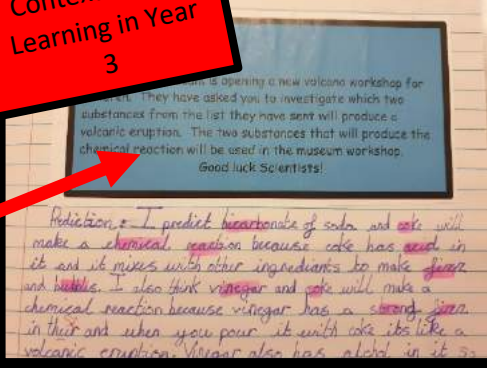
Agenda - Science Meeting - Activity T1 11 June 2018
Part 1 - Types of CPD
• Provide 'CPD is effective when...' cards or blank cards/post its.
• Group the 'CPD is effective when...' cards in a similar fashion to Activity SL1a - Principles of Learning.
• Discuss which types of CPD provide these
Part 2 - Our CPD needs
• Staff complete questionnaire, about their own strengths and areas they feel need developing in science.
• Triangulate the personal audit by staff with that from performance management and data pupil assessment on particular topic areas.
• Do any of these needs link with...

Staff meetings about science regularly take place

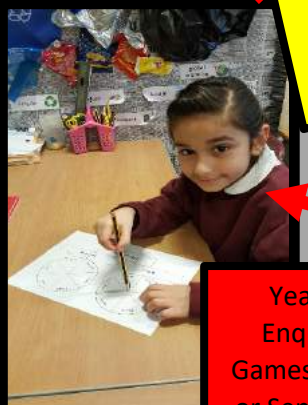


Staff immediately implement new strategies as a result of more regular meetings

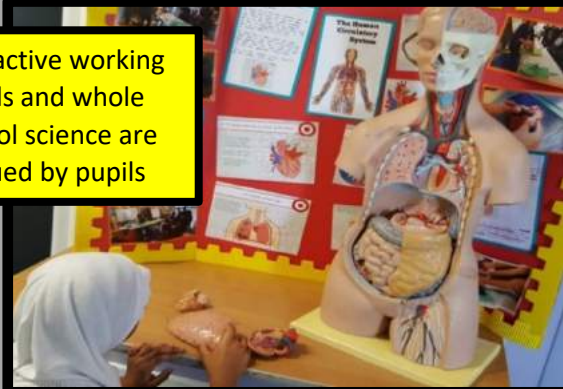
Contextualised Learning in Year 3



Year 2 Enquiry Games - Silly or Sensible?



Interactive working walls and whole school science are valued by pupils



SL3 There are appropriate and active goals for developing science

Principles: All

Target 1: PSQM - Subject leader to work to achieve GILT award this year to establish whole school vision and principles and to raise pupils' science.

Target 2: Reading, Writing, Communication (including ICT) and Mathematics is to be exceptionally embedded in teaching across the curriculum through:

- Highly effective questioning
- Embedding love within the challenge of learning
- Developing resilience, high expectations and curiosity
- Pupils being able to articulate their understanding clearly and thoughtfully
- Opportunities for pupils to improve their learning using written or oral feedback

Actions for Autumn Term - 2018/19:

- Establish Vision and Principles documents to share with staff

SDP now explicitly reflects the PSQM process

Science is now regularly discussed in formal leadership meetings.

Staff subject knowledge needs were identified and supported through CPD



Before PSQM pupils wrote about forces but after PSQM teachers booked a skateboarding workshop for pupils to experience forces (experiential learning)

do: To identify the forces acting on objects

This lady is doing a type of force called pushing. She has to push the pram to travel everywhere and move the shops.

These people are pulling the rope and they need to pull the rope to win and pull the other team towards them.

This boy is pushing a lady to move the toy bicycle. He has to make the wheels turn to move it forward.

This man is pulling his hair. He is pulling his hair because he is very angry and has gone mad.

Link Governor Report

Iqra Primary School
Spring 2019

Focus: Science

Completed by: AA Date & Time: 16.1.19

Type of evidence: Subject Leader: AA Subject/Aspect: Science

Successes (over last term)

'There is now a high level of consistency and all rooms are bright, lively and inviting. A wealth of learning-focused displays, including working walls for English, Maths, and Science. Key vocabulary for different subjects is included in displays and as a part of whole class teaching.' SIP, Dec '18.

- Teaching staff confident with applying the new Science principles
- Practical learning and scientific enquiry evident through lesson observations (internal and external - typically graded Good to Outstanding)
- Activities for all year groups prepared in line with Science Week
- Mad Science Afterschool club for KS1 and KS2 organised for Summer
- Scrutiny on presentations of Science books carried out across school
- Methods of assessment for progression in Science discussed through CPD opportunities.
- Science inset led on hands on minds on learning and assessment
- Continual opportunities for children to explore Science externally
- Pupils voice shows pupils are now enjoying science lessons and practical equipment to develop their enquiry skills.
- Moderation showed that most staff members have secure judgement

Actions for Summer

- Further development of assessment methods in Science
- Continue coaching and modelling with NQT in Year 1 and 2

Monitoring and Evaluation schedule

- Teaching and Learning Reviews (June)
- Book monitoring (TBC)

The PSQM subject knowledge audit has helped me because I was able to share areas I lacked confidence in, in a comfortable environment and get support from the SL (Year 1 Teacher)

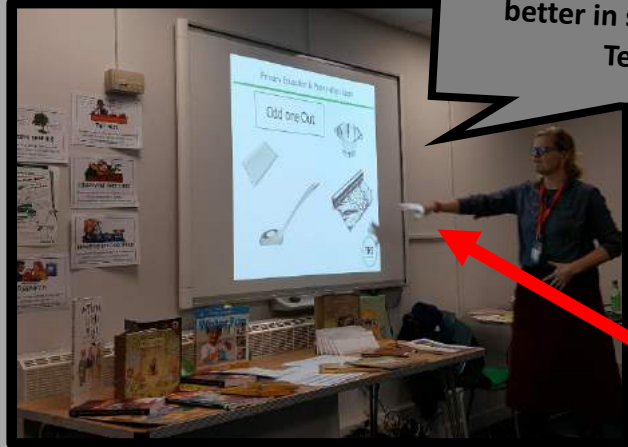
CPD Questionnaire

Please indicate in the table how confident you feel in the teaching of these areas

	Very confident	Moderately confident
Working Scientifically (WS) skills		
Classification enquiries		✓
Pattern seeking enquiries		✓
Comparative and fair test enquiries		✓
Secondary source use enquiries		✓
Observation over time enquiries		✓
Applying writing genres to WS skills		✓
Apply maths skills to WS skills		✓

The development of science across the school is now fed back to GB. Joint science learning walks with governors and SL take place every term.

Lesson observations and book scrutiny now show an improvement in the quality of science provision across the school. (SL Monitoring)



Attending external CPD on supporting all learners helped me to support my EAL pupils better in science (Year 2 Teacher)



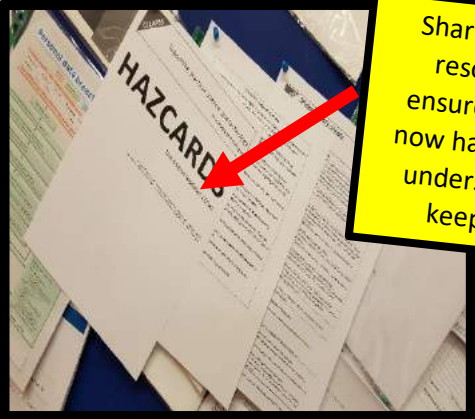
Half termly science staff meetings take place as well as more regular external science CPD

SL4 There is a commitment to the professional development of subject leadership in science

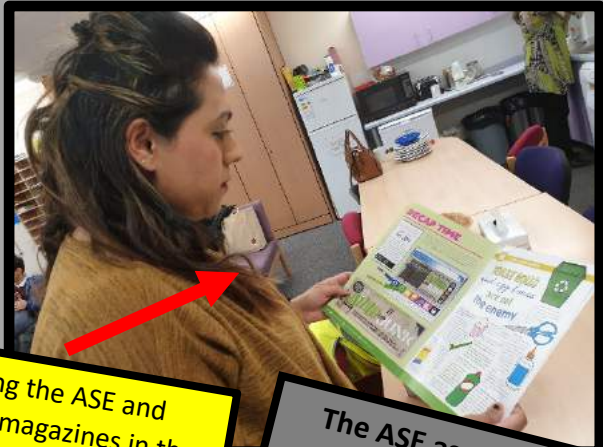
Principles: All

Securing time out for regular CPD has ensured that the quality of teaching and learning across the school has improved

February	Attend local CPD on science enquiry and then perINSET to staff on the hands on minds on approach	SL and science leads	<ul style="list-style-type: none"> All staff now use a wider range of enquiry skills All staff now use books as stimulus for science
February	Share websites with topical science updates		<ul style="list-style-type: none"> All staff now share topic science related updates with pupils so pupils are exposed to science in real life contexts
February	Attend Secondary School Science Lesson	SL	<ul style="list-style-type: none"> Pupils experience science in secondary school Exposed to wider range of career opportunities



Sharing CLEAPPS resources has ensured that staff now have a greater understanding of keeping safe

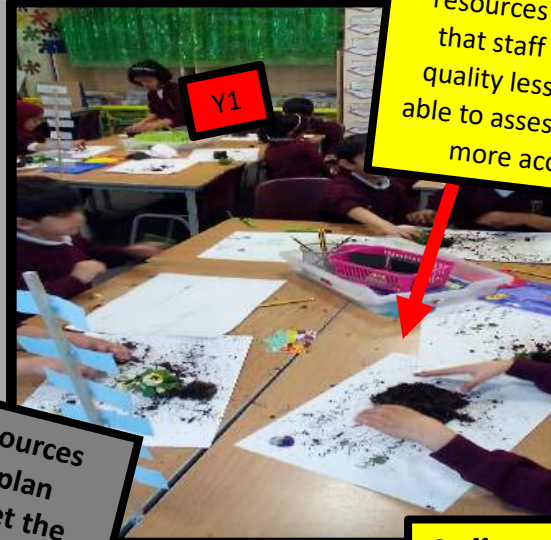


Sharing the ASE and CLEAPPS magazines in the staffroom has given staff access to a wider range of teaching strategies

I have been able to secure time and funding for regular internal and external CPD



The ASE assessment resources have supported me to plan lessons which better meet the curriculum requirements as well helped me to assess where my pupils are at and what their next steps are (Year 4 teacher)



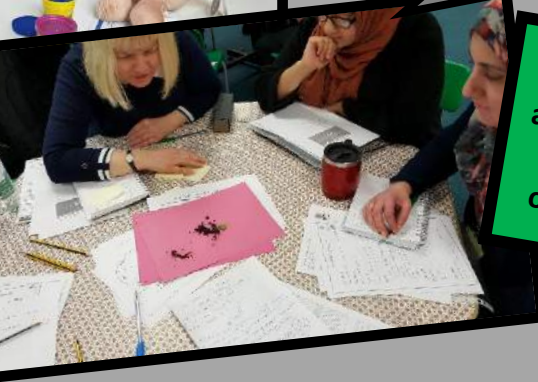
Sharing ASE assessment resources has ensured that staff plan higher quality lessons and are able to assess their pupils more accurately.

the outside space (contd.)
the basic structure of a variety of common flowering plants, including

Shanae found roots sticking out of the ground and also pointed out unusual leaves, stems and found the flower she liked the most

Shanae is confident in naming and describing some of the basic parts of plants – leaves, roots, branches. She has not talked about flowers, buds or stems as yet.

Staff now regularly use resources from the ASE, STEM and Ogden Trust websites, including primary UD8 activities



It is important to learn about how pollution of the ocean is affecting our diet (Year 3 pupil)

Y4

What have the microbeads replaced in the food web?

primary upds

Are you eating plastic for dinner?

© ASE 2014

SL5 There are monitoring processes to inform the development of science teaching and learning

Principles: 1, 6 and 7

SDP now explicitly references the development of science



School Development Plan – Science Section Only

Target 1: PSQM - Subject leader to work to achieve GILT award this year, to establish whole school vision and principles and to raise pupils' science capital

Gathering pupil voice at regular intervals has helped me to monitor the development of science across the school

Before PSQM

We need more lessons where we actually do science and don't just write about it (Year 3 pupil)

After PSQM

I have become better at applying my mathematics in science lessons. My best lesson was when we investigated the affect of exercise on our breathing rates (Year 6 pupil)

After PSQM

I like that we now use more equipment and do more investigations in science lessons (Year 2 pupil)

December	Book and learning environment scrutiny Pupil voice	SL and science leads	<ul style="list-style-type: none"> All books now show pupils are using a wider range of practical equipment and carrying out lessons which are contextualised
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SL and science leads regularly conduct monitoring activities

Year 4 Before PSQM – Changes of State

Year 4 After PSQM – Changes of State

Pupil work before and after PSQM

After PSQM

I like that feedback for science is given more regularly now so I can identify my next steps and know where to go for support (Year 3 teacher)

After PSQM

It was helpful to take the subject knowledge audit to see where my gaps in knowledge are. Since then, attending external CPD on this area has made me feel more confident at teaching (Year 5 teacher)

Reporting findings from monitoring to GB has ensured that all stakeholders are now better informed

March	Report to GB about development of Science	SL	<ul style="list-style-type: none"> All stakeholders are actively involved in the development of science across the school Strengths and next steps were shared Science is now viewed as important as core subjects
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Carrying out a recent learning walk I can see that teaching and learning in science has really improved. Pupils are having fun and are using higher quality science vocabulary (Governor)

Staff voice shows that staff have responded positively to the monitoring process

T1 There is engagement with professional development to improve science teaching and learning.
Principles: All

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Secondary source use enquiries		✓	✓
Observation over time enquiries		✓	✓
Applying writing skills		✓	✓



Fair Test Scramble

Year 5	Change	Measure	Keep the Same
How does the height of the ramp affect the distance it travels?	I will change the height of the ramp each time to see if it makes a difference.	With a measuring tape I will measure how far the car travels along the ramp and passed it.	Use the same length and material of ramp. Use the same car each time.

Activity T1 findings helped to identify staff strengths & weaknesses to better focus CPD

After the INSETs I feel more confident to deliver high quality enquiry based lessons and am using a wider range of games in science (NQT)

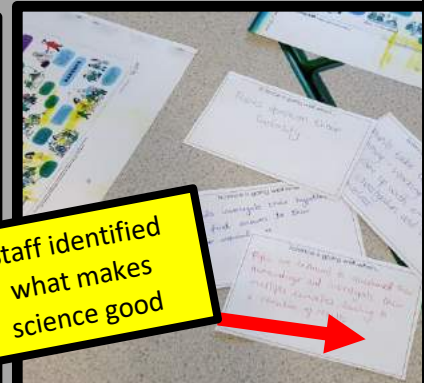
Lesson observations and books now show that teachers feel more confident in their own subject knowledge and are planning lessons which develop a wider range of enquiry skills (SL Monitoring)

Staff now plan lessons where pupils develop a wider range of enquiry skills

Pupil books, planning and displays now show pupils are making better progress in WS and applying writing and mathematics in science

Pupils now use games to develop their enquiry skills such as Fair test scramble (Goldsworthy)

Key words from a variety of teacher lesson observations show that lessons now are more practical and are more enquiry based

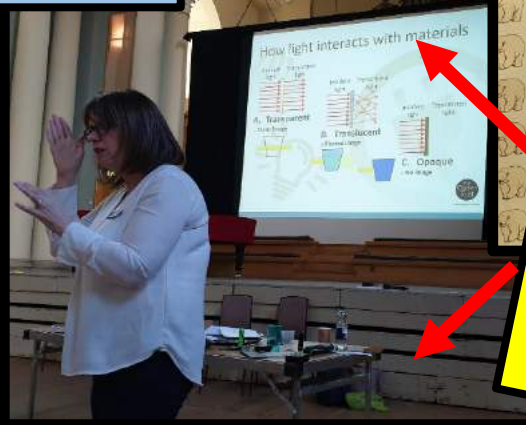


Staff identified what makes science good



Year 1
 Polar bears
 Introduction
 Did you know Polar bears have can curl up to stay warm?
 Diet
 Polar bears are carnivores they eat seal blubber with a high fat and oil content. They are not herbivores or omnivores.
 Appearance
 They are black and their nose is black they also have a sharp teeth to eat their prey. I can look after you can see his big teeth.

Through your observations - what 3 things did you learn whilst making your candles? What is needed to light up a flame?
 How years ago they didn't use wax but a mix of 5 parts they used different resources. Every candle needs a wick otherwise it won't burn. Candles every years ago took time. You need oxygen, heat and heat to light up a flame.
 What was the relationship between the cooling process and melting process?
 For the cooling process you need cold water and for the melting process you need heat.
 What chemical elements were discussed using the discs?
 The chemical elements H₂O water, O₂ oxygen, CO₂ carbon dioxide, helium and oxygen.



CPD with the Ogden trust ensured that science leads developed knowledge in Physics



Year 4

T2 There is a range of effective strategies for teaching and learning science which challenge and support the learning needs of all children.

Principles: All

Progression in Science		YEARS 1&2	YEARS 3&4	Iara Primary School YEARS 5&6
Asking questions	Pupils should be taught to:	ask simple questions and recognise that they can be answered in different ways	Pupils should be taught to:	plan different types of scientific enquiries to answer questions, including recognising and controlling variables
	Measuring and recording	Pupils should be taught to:	Pupils should be taught to:	Pupils should be taught to:
Evaluating	Pupils should be taught to:	gather, record, classify and present data in a variety of ways to help in answering questions	Pupils should be taught to:	Pupils should be taught to:

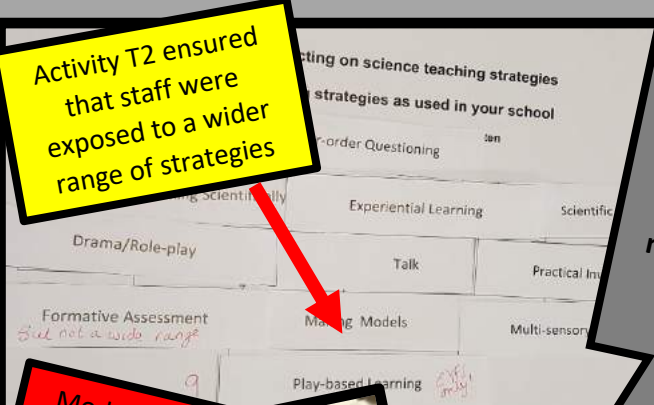
Sharing the school's Progression in Science document has supported staff in their differentiation to meet the needs of all learners

The skateboarding workshop was a cool way to learn about forces! (Year 4 pupil)

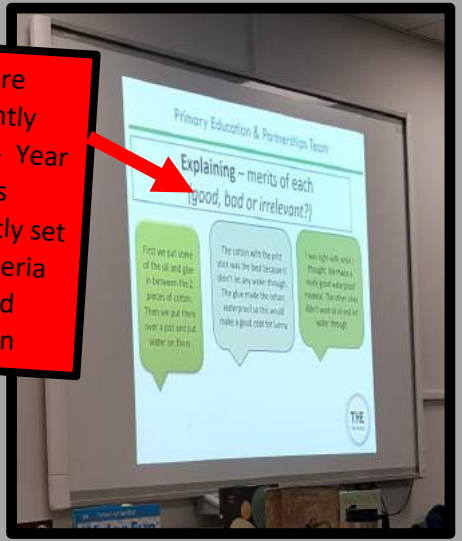


After the INSETs I use stories as a stimulus for science lessons and have found pupils are more engaged and make purposeful links to English (Year 2 Teacher)

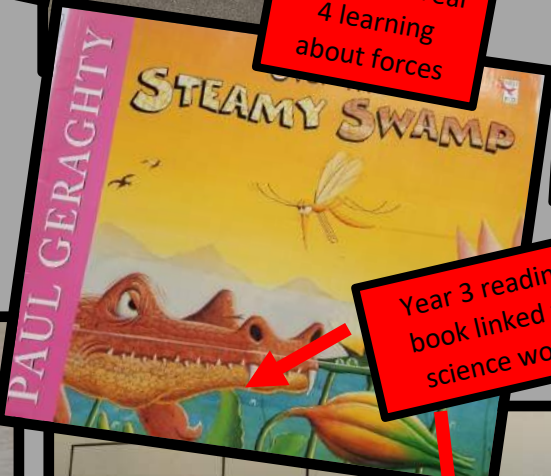
Activity T2 ensured that staff were exposed to a wider range of strategies



Pupils are consistently challenged - Year 3 pupils independently set success criteria for a good conclusion



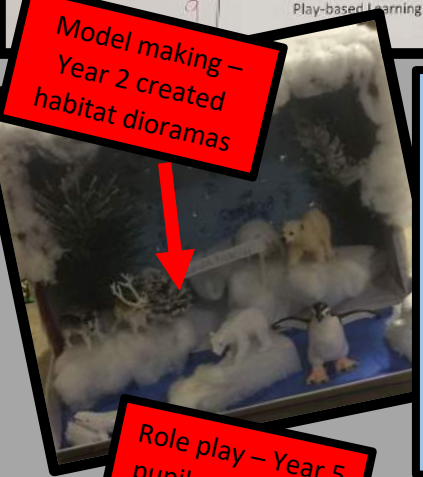
Play-based learning - Year 4 learning about forces



LA - SEND
Pupils use Hula Hoops to create large Venn diagram on carpet to sort and classify living things

Key questions on table:
Is it alive?
Is it not alive?
Has it ever been alive?

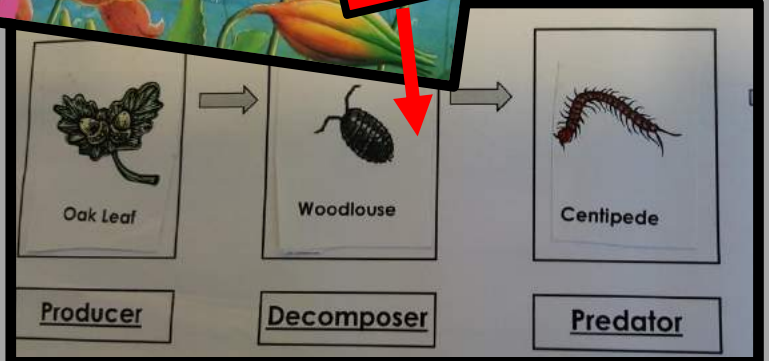
Lesson observations now show a wider range of strategies to support the needs of all learners have been embedded including: play based learning, story led learning and model making (SL Monitoring)



Model making - Year 2 created habitat dioramas

SEND differentiation in every lesson plan has ensured all pupils make good progress

Year 3 reading book linked to science work



Model Making - Year 1 pupils made models to depict the parts of a plant

Role play - Year 5 pupils adapted to conditions in space



Material Sort

They are different because...

They are similar because...

They are different because...and...is...

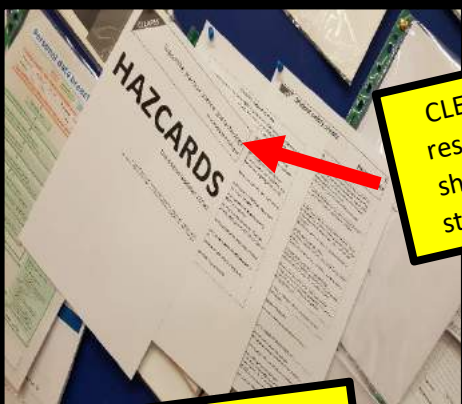
They are alike because they are both...

It feels different because this one...and that one...

EAL learners are given scaffolds to develop their scientific reasoning

T3 There is range of up-to-date, quality resources for teaching and learning science which are used regularly and safely

Principles: 1 and 3



CLEEPS resources shared in staffroom

Having bought in a wider range of equipment, pupil technicians have been made responsible for the resource cupboard and ensure that all classes can easily access resources.

I love being responsible for all the science equipment and making sure every class uses the resources! (Year 4 pupil)



Resources
Data loggers (pulse sensors), stopwatches, clipboards with results table

ICT link – Laptops and VR goggles are used to support pupils' research

Lesson Plans show a wider range of resources are being used

Lesson observations show more use of practical equipment



Year 6 – Data Loggers



Year 2 – Pipettes

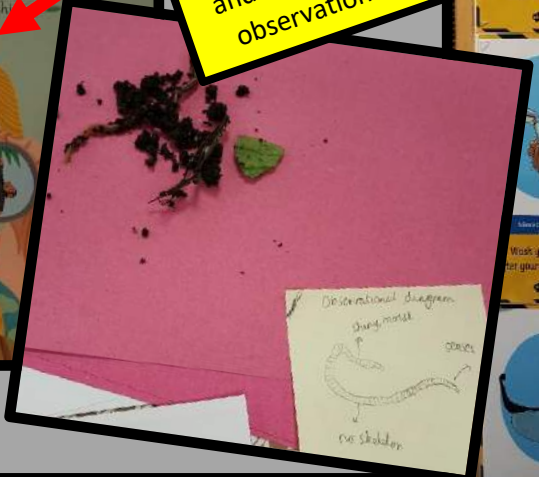
The school library now has a wide range of science related fiction and non fiction texts



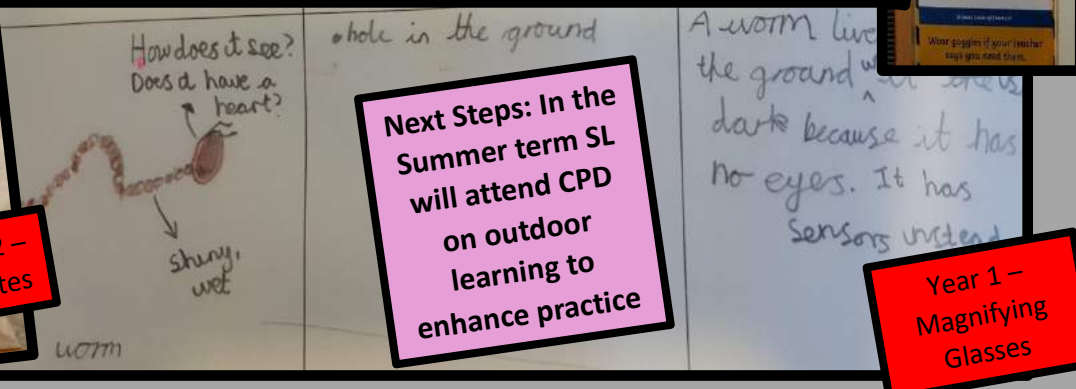
Displays ensure pupils have a better awareness of keeping safe in science



In Year 1 pupils used a text as a stimulus. They built a wormery and made close observations.



Year 3 – Magnets



Next Steps: In the Summer term SL will attend CPD on outdoor learning to enhance practice

Year 1 – Magnifying Glasses

L1: There is a shared understanding of the purpose and process of science enquiry.
Principles: 1, 2, 3 and 4

Animals Including Humans
Year 2

Bonus make
You jump skip and all sorts of stuff like that.
Bones help you to move and your muscles help pick up weights.

which kind of bones do animals have inside?

Year 6

I want to know how I can look after my heart.

Describe the ways in which nutrients and water are transported in animals and humans.

How does the human circulatory system work and what happens when you have a heart attack?

Can you identify and name the main parts of the human circulatory system?

All pupils now ask questions and make independent choices in scientific enquiry

Year 1

What I know

What I would like to find out

Pupils use a wider range of practical equipment safely and accurately e.g. electrical circuits, VR goggles and microscopes to observe closely

I enjoy when we come back to questions that we asked at the start of a new topic and I now know the answer (Year 5 pupil)

"The experience was mind-blowing!" Miss Abani (Year 4)

Displays promote different scientific enquiry types to support pupils

Aim:
The question or statement I am investigating.

Prediction:
What I think will happen and WHY.

Equipment:
What equipment will I need to carry out my investigation?

Method:
Can I make decisions on how best to carry out the investigation?

Fair test:
What variables will I change?
What variables will be kept the same?

Collecting data:
Can I select appropriate tables and graphs to present my data?
How many times must I repeat to get reliable data?

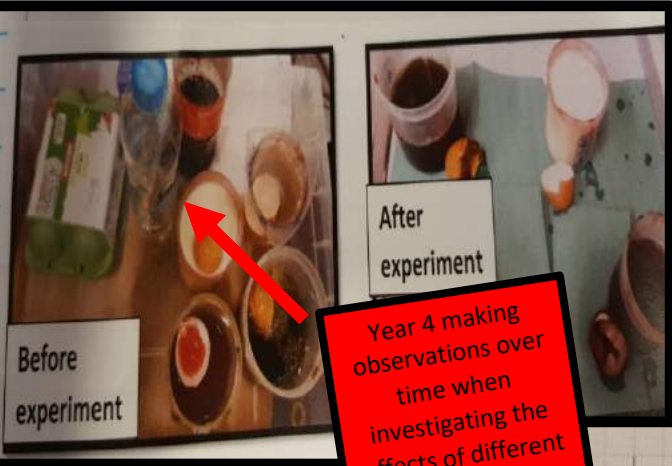
Results:
Can I interpret the data?
What does my graph show?

Conclusion:
What did I find out?
Was my prediction correct?
Give an explanation for my findings!
Check my explanation with writing at a higher level?

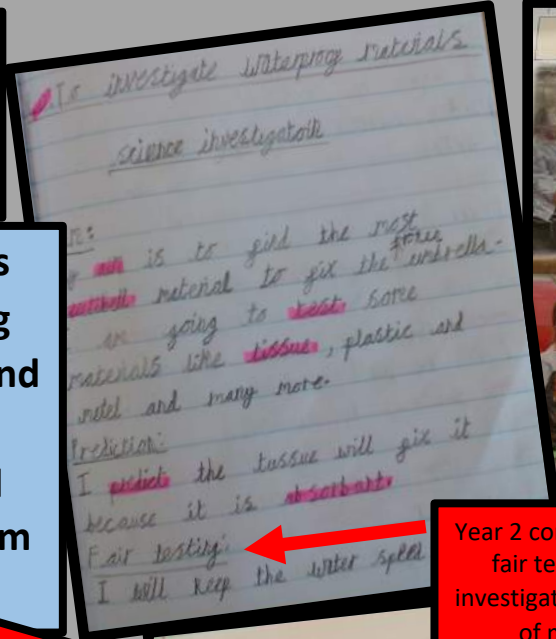
I wonder where...
I wonder if...
I wonder why...
I wonder what...
What Will Happen If...?
I wonder how...

L1: There is a shared understanding of the purpose and process of science enquiry.
Principles: 1,2,3,4, 5 and 6

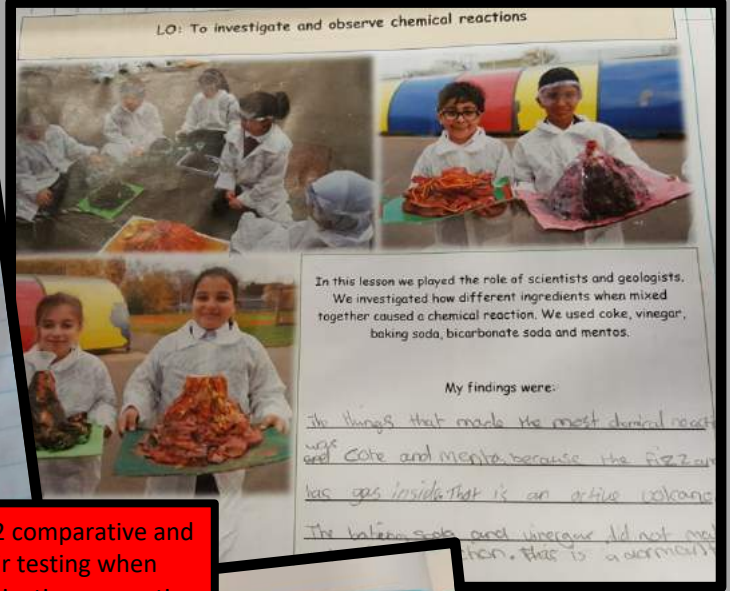
Lesson observations and books now show that pupils are using the full range of enquiry types and are growing in confidence at asking scientific questions and planning how to investigate them (SL Monitoring)



Year 4 making observations over time when investigating the effects of different liquids on teeth

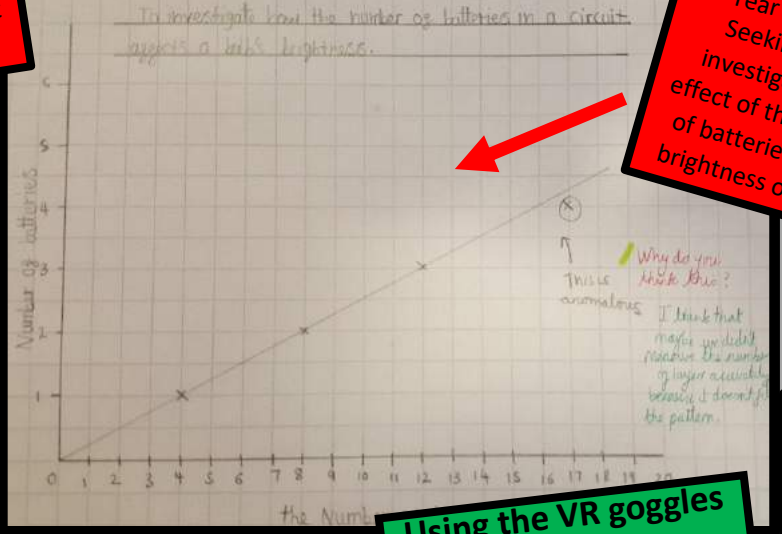


Year 2 comparative and fair testing when investigating properties of materials



You are in charge of the Roman's scrapyard. There is a big pile of materials to sort out, and you need to separate the magnetic materials from the non-magnetic materials. Use a magnet to attract materials, and remove them from the pile.

Magnetic	Non-magnetic
scissors	iron
paperclip	pen
ball leg	glue
chair leg	glancing pencils
tin	scissors
tooth lock	tray
board	door handle
pencil case	book
mirror	shoe
metal pot	hair band
spoon	bracelet
metal	wood
Sharpener	wall
Shaver	door
foamed rubber	disc
frayley	globe
	container
	tree
	marble
	plastic
	ruler



Year 6 Pattern Seeking when investigating the effect of the number of batteries on the brightness of a bulb

For test: changing variable is the different liquid you are going to use. The same variable is that you need the same sized water because you might put a different amount about another thing. It won't be fair and you need to put the same amount of liquid in the cup. otherwise it will

Year 3 researching using secondary sources including VR



Using the VR goggles helped me to imagine what a volcano is like. (Year 3 pupil)

Year 5 recording results when investigating the effect of exercise on heart rate - Cross curricular links to Mathematics

Activity	B.P.M BOY	B.P.M GIRL	Average
Jog on the site	123	96	109.5
Star jumps	142	104	123
Sit-ups	226	137	181.5
Skipping	228	220	224

Year 3 identifying and classifying materials

L2 There is a shared understanding of the purposes of science assessment and current best practice. Principles: 1, 2 and 5

Self-assessment:

I have started each food chain with a producer (green plant)	✓
I have included a consumer in each food chain	✓
I know what the arrows mean in a food chain	✓
Can you name the prey in your 3 rd food chain?	leaf
Can you name the predator in your first food chain?	bird
Challenge: Did you identify different classified animals in your food chains	Yes

Year 3

Pupils now use self and peer assessment against known criteria and identify next steps

Year 4

I predict the ice cube ^{melting} is a reversible change when you heat it up it would melt into water and when you cool it in a cold temperature it would freeze but in a different form. Therefore I believe it is reversible.

Was my prediction correct? Yes I was right. Water can change states and it's reversible.

Children return to their predictions to determine if they were accurate or not.

Children now put forward ideas for what they would like to learn next on our 'wonder wall'

Teachers took part in moderation to secure judgements.

Year 1

Plants

The use of KWL grids has ensured that pupils now take ownership of their own learning journey.

What I Know about Plants	What I would like to find out	What I learnt
They give out oxygen	I would like to find out how many different plants are there?	I learnt that plants need water & sun and a seed to grow.

Year 4

I wonder...

- Why do some animals have furs?
- Where do animals come from?
- How many types of insects are there in the world?
- How do fish breathe under water?
- How do their bodies adapt to the earth?
- What does an earth life?
- Where do animals live?

Teachers now use feed-forward marking to advance pupils' learning.

I like how you identified the different types of like insulator and explained the functions. Next time think you should explain how to keep your lab healthy.

by Jamal.

Concept cartoons now used widely for formative assessment

Whole school data shows that most pupils make good progress

At or higher	Above or higher
447 (71.4%)	216 (34.5%)

Year 6

The electrons can travel through w

The electrons must flow through a full circuit and can flow into humans

The electrons must flow through a full circuit and can flow into humans

Metal is a conductor so if there is no metal they will be fine but I know humans can get electrocuted to they conduct too!

I think the further away you are the less it will hurt - less power maybe.

I know electricity must flow through a circuit

6.4

Pupil Name: [redacted]
Context: PPI, Boy
Teacher Judgement: Working at the Expected Standard
Agreed Judgement: Working at the Expected Standard

Working scientifically	Evidence Seen
I can ask simple scientific questions.	<input checked="" type="checkbox"/> Knowledge harvest, KWL grids
I can use simple equipment to make observations.	<input checked="" type="checkbox"/> Magnifying glasses, pipettes, thermometers, petri dishes
I can carry out simple tests.	<input checked="" type="checkbox"/> Investigations throughout units – opportunities for fair testing
I can identify and classify things.	<input checked="" type="checkbox"/> Sorting living things, classifying materials
I can suggest what I have found out.	<input checked="" type="checkbox"/> Able to refer back to predictions to check, able to explain what they found out
I can use simple data to answer questions	<input checked="" type="checkbox"/> Cross curricular links to Mathematics Good to see contextualised learning – linked to real life problems, pupils see how science affects them

Explain why a tree is a living thing.

Because it grows and it needs water to live.

L3 There is a commitment to developing all children's science capital

Principles: 1, 6 and 7

Additionally next term pupils in Year 2 will be learning about habitats as part of their Science unit of work on Living Things and their Habitats. To support their learning pupils are to make a 3d habitat. Below are some examples.



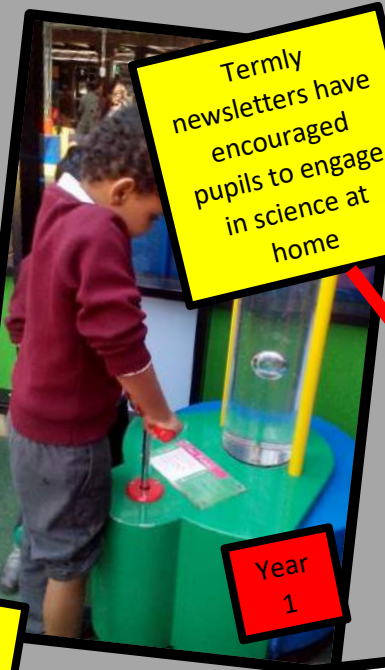
Through homework pupils now make cross curricular links to Science



Year 4



Year 1



Termly newsletters have encouraged pupils to engage in science at home

Science at home!

Can you grow seeds in salt?

In Spring, plants pop up everywhere. Grow your own! What conditions do plants grow best in? Most humans like salt - especially on chips - but do plants?

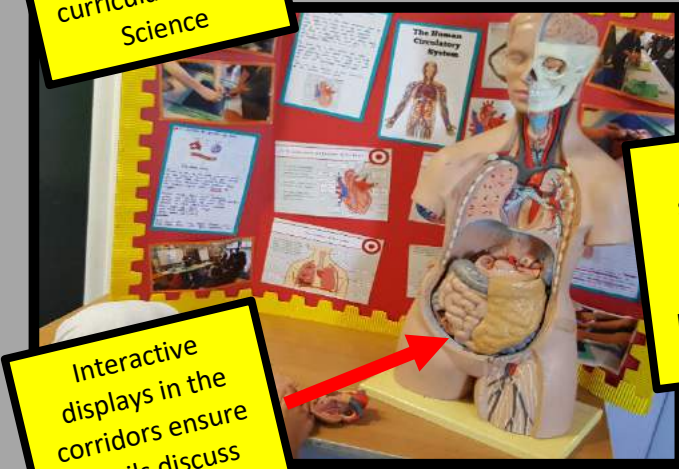
What you need:

- Plastic or paper cups
- Cotton wool and cling film
- 10 bean seeds
- Salt

What to do:

1. Cover the bottom of both cups with cotton wool.
2. Sprinkle some salt over the bottom of one cup. Label the cup with an "S" so you remember which cup has salt in it.
3. Place five bean seeds in each cup, water the cotton wool lightly and cover with cling film.
4. Place the cups in a sunny place - a windowsill
5. After five days you should see the seeds start to grow.

Which seeds start to grow? How tall do the plants get? If you vary the salt levels, how do the plants grow better?



Interactive displays in the corridors ensure pupils discuss science throughout the day

All year groups plan science related visitors and trips so pupils now understand the wide range of jobs of scientists in the real world.



EYFS

Parents now use the links to science websites on the school science page

Here are links to science websites and activities that you can try at home:

- <https://sciencebob.com/>
- <http://www.planet-science.com/>
- <http://www.bbc.co.uk/schools/dynamo/>
- <http://www.bbc.co.uk/schools/digger/>
- <https://www.sciencemuseum.org.uk/games-and-apps>
- <https://primarysite-prod-sorted.s3.amazonaws.com/walfordprimaryschoolrossonwy/UploadedDocument/fe86526c284b42c98f06507b6a11e0aa/science-national-curriculum.pdf>

I enjoy the science at home ideas - we had fun making chemical reactions in our kitchen (Parent)



Giving out regular certificates, stickers and prizes has helped motivate pupils to extend the amount of time they dedicate to science



Year 2

When I grow up, I want to work in the zoo to help look after the animals (Year 2 pupil)

In response to pupil voice, science themed assemblies take place every half term




WO1 There are appropriate links between science and other learning.

Principles: 1, 2, 3, 6 and 7

Medium term plans now explicitly highlight cross curricular opportunities

NC Objectives:

- I can use the internet to research information on the effects of not recycling.
- I know where to go for help if I am concerned.
- I use technology respectfully.



Cross Curricular: Mathematics
NC objectives:

- Interpret and construct simple pictograms, tally charts, block diagrams and simple tables
- Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity
- Ask and answer questions about totalling and compare categorical data

Cross Curricular: Science: Living things and their habitats
NC objectives:

- I can use information from books and online sources to find things out.
- I can explain things that are living, dead or that have never been alive.
- I can explain most living things live in habitats which suit them and depend on each other.
- I can explain some plants and animals in their habitats and micro-habitats.
- I can explain how animals get their food from plants and other animals using a simple food chain.
- To identify, group and classify.
- To be able to use scientific skills.

Pupils regularly make videos for the school YouTube channel which showcase science learning across the school



Filming the eco-warriors video will help children in other schools to recycle (Year 2 pupil)

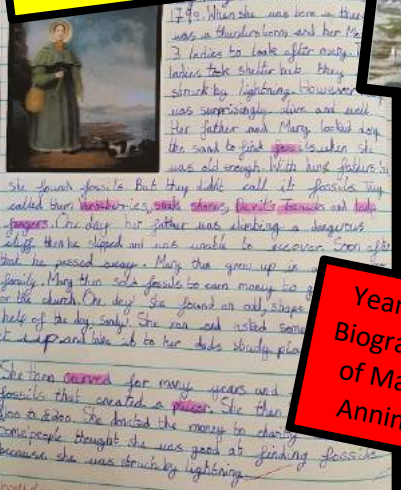
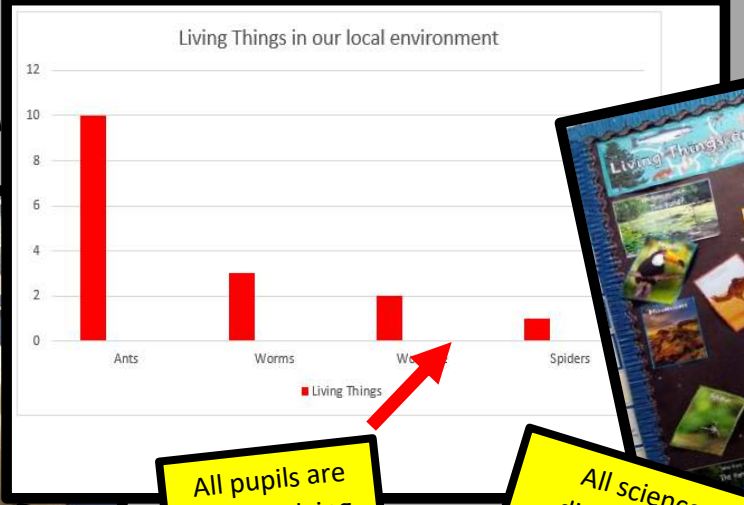
Whole school science displays now showcase science learning

Science is now a part of whole school initiatives such as the eco-warriors campaign which has ensured that pupils are now engaging in a significant amount of science outside of science lessons.

Lesson observations and pupil books now show that more meaningful links are being made in writing e.g. through the use of role play and writing in scientific contexts.



Writing – stories are now used as a stimulus for Science



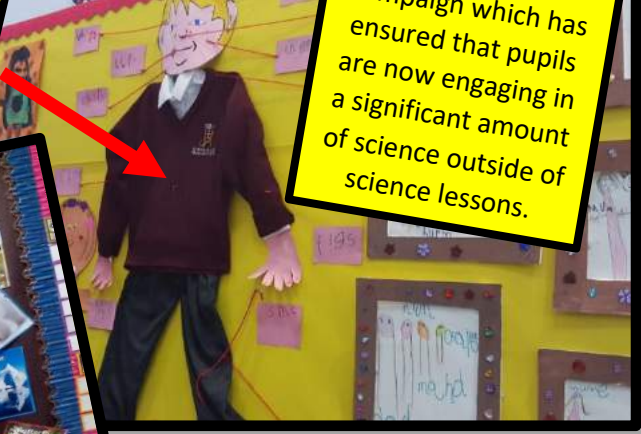
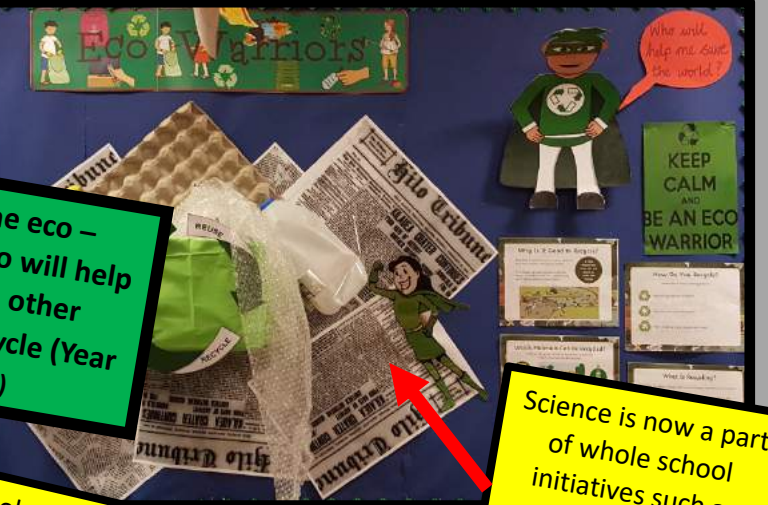
Year 3 – Biography of Mary Anning



Year 2 – Reports about Living Things

All pupils are now applying mathematical skills in a wide range of scientific contexts

All science displays now have a range of topic related non-fiction texts to aid pupils' research



WO2: There are appropriate links with families, other schools, communities and outside organisations to enrich science learning.

Principles: 1, 2, 3 and 7



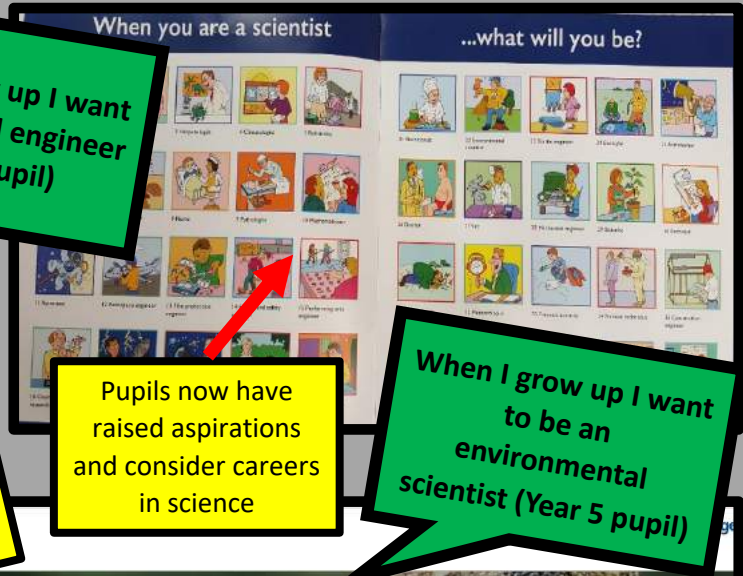
WHICH FIZZY DRINK IS THE MOST ACIDIC?

Visiting a local secondary school science department ensured pupils had enriched experiences of science in secondary

Year 5 Workshop on Measuring Wind speed

All staff now follow websites with topical science links which has ensured that pupils are regularly discussing scientific ideas and how they have changed over the years.

When I grow up I want to be a sound engineer (Year 6 pupil)



Pupils now have raised aspirations and consider careers in science

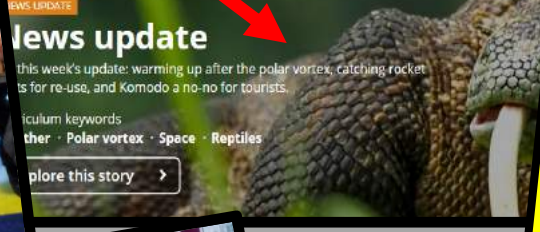
When I grow up I want to be an environmental scientist (Year 5 pupil)

Year 6 attended a secondary school science fair



Afterschool weekly science club run by external providers has ensured that pupils now carry out practical science activities and develop their enquiry skills

Agencies such as the eat well project and active movement, have ensured that pupils and parents have a greater awareness of how to look after their bodies and are therefore applying science knowledge to real life.



Adding science related newsletters, activities, competitions and challenges which children and parents can do at home onto the science page on our school website, has further ensured that pupils and families are engaging in science.

KS2 – Eat Well Club

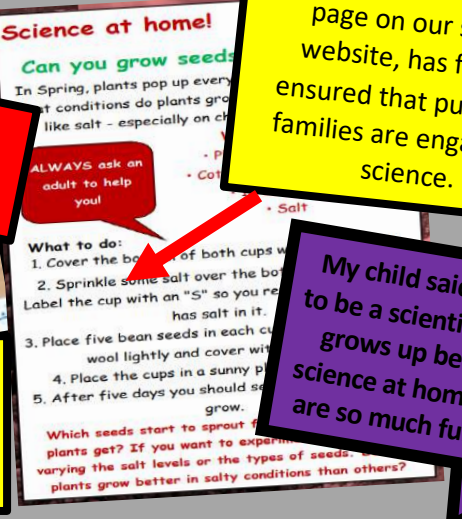


Year 4 Teeth Workshop



Year 3 Workshop on Forces

All year groups regularly book trips, workshops and visitors with strong links to science to provide enrichment activities for pupils



My child said she wants to be a scientist when she grows up because the science at home activities are so much fun (Parent)