SCIENCE SUBJECT LEADERSHIP

The school Science SDP is reviewed and updated yearly in consultation with the SLT and Governing Body

I have actually enjoyed aspects of teaching science online – I've enjoyed the clarity of what I should be teaching this year. Thanks for being so organised yet not overloading the team!
- Clare Bailey , Class Teacher

I have been really impressed with the development of the teaching of science this year, particularly during lockdown
- Steve Mills, Head Teacher

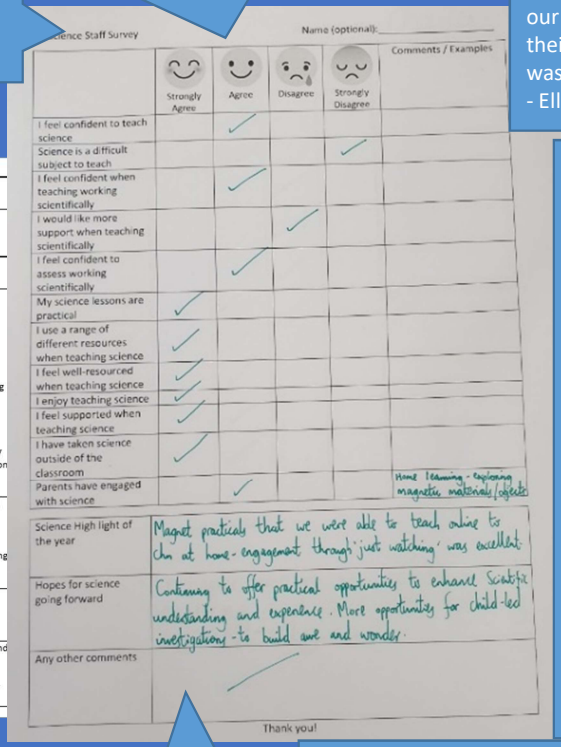
I think the mapping of science (on our INSET day) was extremely useful. It was great to see how the different topics linked as they came up in different years - e.g. forces in year 3 and year 5. It is useful to check we aren't overlapping our teaching and are actually continuing from their knowledge gained in a previous year. It was also lovely to work collaboratively on it.
- Ellie McGurk, Class Teacher

Working scientifically skills

Subject Area: Science

Objective	Objective Coordinators
1. To maintain and continue to raise standards of science teaching and learning. 2. To maintain pupils' enthusiasm for learning science. 3. To forge further links with other schools and the wider community.	Annette Little / Glenn Denney/ Wendie Ray

Ref	Target	Action	Lead	Success Criteria	Resources / Costs	Specific Monitoring / Dated	Evaluation
1.1	To share good practice.	Observation of science lessons. Pupil voice. AL team planning & teaching.	AL & GD All staff AL & GD & WR AL & All staff	Share ideas for teaching science. Maintain high standards of teaching and learning. More practical / demonstration lessons being taught. Clear learning objectives. Less writing up of whole investigations.	Cost of covering classes. Pupil voice sessions	Ongoing	GD & AL observed all years teaching science and feedback to individuals Did not happen – COVID AL Team teaching allowed ongoing CPD for teachers throughout the school. Evidence in books of shifting away from writing up whole investigation
1.2	To increase confidence in the teaching, learning and assessment.	Staff meetings. Inset. AL team planning & teaching.	AL & GD AL & All staff	Evidence of good quality science lessons.	Time in staff meetings. Herts Science lead	Ongoing Spring term	Starters and good practice shared at staff meetings across the year Training completed in staff meeting with CJ
1.3	To promote x curricular links with science.	Staff meetings. Planning.	AL & GD All staff	Complete coverage of science curriculum. Enhance learning.	Time in staff meetings	Ongoing	Links with maths, English, Art, geography explored in Science working groups.
1.4	To maintain and increase science related visits and visitors.	Re-share list of places to visit. Encourage visits and visitors.	AL & GD All staff	Principles of science applied. Relate science to real life.	Science & Computing Week	On going Science & Computing Week	Year 4 Natural History Museum and Hudnall Park (rocks and soils) happened, as did Year 5 National Space Centre. We had visitors for Science & Computing week



Science Staff Survey — Name (optional):

	Strongly Agree	Agree	Disagree	Strongly Disagree	Comments / Examples
I feel confident to teach science		✓			
Science is a difficult subject to teach				✓	
I feel confident when teaching working scientifically		✓			
I would like more support when teaching scientifically			✓		
I feel confident to assess working scientifically		✓			
My science lessons are practical	✓				
I use a range of different resources when teaching science	✓				
I feel well-resourced when teaching science	✓				
I enjoy teaching science	✓				
I feel supported when teaching science	✓				
I have taken science outside of the classroom	✓				
Parents have engaged with science		✓			Home learning - exploring magnets, materials, objects

Science High light of the year: Magnet practicals that we were able to teach online to children at home - engagement through 'just watching' was excellent.

Hopes for science going forward: Continuing to offer practical opportunities to enhance Scientific understanding and experience. More opportunities for child-led investigations - to build awe and wonder.

Any other comments: ✓

Thank you!

Over the last two years, subject leads have looked very closely at rearticulating our school curriculum. A curriculum which has been constructed to ensure horizontal as well as vertical rigour. As part of this process, subject leads had the opportunity to work with our Improvement Partner and Senior Ofsted Inspector to show how we are connecting different aspects of our curriculum. Interconnectivity of the subjects will lead to a far greater understanding. The whole day was a huge success (including the coaching sessions on Ofsted Deep Dives) with our HIP reporting that subject leads across our school 'got it' and truly understood their curricula.
– Steve Mills, Head Teacher

r 3

Science Topics	Key Investigations	Working Scientifically Skills Covered	Links to topic / Cross curricular with maths and English
ing Things d Their bitats	Minibeasts classification.	1, 7, 8	Maths - problem solving.
	Investigating behaviour of a living thing (choice chambers and mazes for woodlice).	1, 2, 3, 4, 8	D&T - designing woodlice mazes. Wymondley Woods Walk
imals cluding Humans	Food chains.	1, 7, 8	Maths - data, drawing of results.
	Becoming personal trainers (over a number of weeks).	1, 2, 4, 6, 7, 8	English - reading opportunities of client profiles.
	Diet and nutrition (eat well plate).	1, 4, 5, 8	PE
	Do some people have stronger muscles because they use them more?	1, 3, 4, 6, 7, 8	D & T - making a skeleton
	How things move on different surfaces (material ramps).	1, 2, 3, 4, 6, 7. 8	
	at materials are magnetic and non-magnetic?	1, 4, 7, 8	Maths - recording results, problem solving.
	How do magnets react to each other?	1, 2, 4, 7, 8	D & T - designing a magnetic-based toy or game.
	Magnetic field (magnets and	1, 2, 4, 8	

It is imperative that we maintain the school's approach of delivering a broad and balanced curriculum. With much talk about 'catch up' at present it would be very easy for schools to become even more narrow than before, focusing entirely on maths and English. Fortunately, at Whitehill, this has never been the case and therefore science will continue to be prioritised across the school and most certainly on our SDP as we plan for a full year from September 2021 and a chance to deliver our rearticulated curriculum.
- Steve Mills, Head Teacher

The range of resources – LBQ, Explorify, TigTag – are supportive and have a positive impact – Anna Beresford, Deputy Head

Found it so interesting to see the subject mapped into areas across the year groups (and also list extra opps. for topics)- really gave us an insight into where we had a few areas covered too much or too little. Gave each year group much more of a focus where the children were coming from when covering a specific lesson objective too - helps you move at a good pace in a lesson if you know in more detail what the children have covered in previous years/lessons.
- Sarah Small, Teacher

SCIENCE SUBJECT LEADERSHIP

Science clearly generates a huge amount of engagement amongst the pupils.

Some common themes across the years are the sense of ownership and responsibility in their own learning that science gives them.

There was increased engagement and enthusiasm shown for topics that they felt had a relevance to their world

Finally, science is fun. There was a lack of perceived repetition in science – a sense that you constantly learn new stuff in science and less of a sense of straight repetition (you practise the same calculations in maths, but you never repeat the same experiment in science).

Vitally, science is a subject which teaches them it is ok to be wrong, and to learn from it. To not be afraid of having a go and (maybe) getting it wrong.

Whitehill Junior School

GOVERNOR VISIT RECORD

Governor's Name: Wendie Ray

Date of Visit: Wednesday 9 December 2020

Focus of Visit: Science Link Pupil Voice – to support PSQM submission

In support of the Primary Science Quality Mark submission, it was agreed that I would carry out a Pupil Voice to understand which aspects of science at Whitehill children remember, have enjoyed and why.

Classes Visited: Yr3, Yr4, Yr5 & Yr6.

Given the nature of the restrictions in place currently (Covid pandemic restricts mixing to within year group bubbles only, with cross-bubbling (me/Glenn) to be avoided), 4 representatives from each of the four year groups (two from each class) were assembled, cohort by cohort, to meet in the studio classroom. Tables/chairs/surfaces were sanitised between each cohort, and Glenn and I sat over 1m apart from the children.

Sources of Information:
e.g. Headteacher, class teacher, display work, children's books, pupil voice, looking at resources

The pupils in small groups of 4, each year separately, with 2 children from each class; in discussion for between 30 – 40 minutes.

My goal was to find out what role science played in their learning at Whitehill.
More specifically, which science topics they remembered covering this year and prior, which they enjoyed the most and why; the role of the practical experiments within the topics, which they enjoyed and why; the development of science across the curriculum, for example how was science in year 6 different from in year 3; the cross-curricular links between science and other subjects; if/how the teaching of science differs from other subjects; and how the skills they develop differs. Ultimately, what makes science fun and interesting at Whitehill; and what makes a great science lesson?

Whilst Glenn Denney was present during the full pupil voice, I led the discussion throughout and don't believe that the pupils were unduly influenced by his presence. I didn't perceive any censoring of comments in the pupils' responses.

The flow of the discussion followed the following questions:
- What do you like about science? Why? Any dislikes?
- Which topics have you enjoyed? Why? Any dislikes?
- Which practicals have you enjoyed? Why?
- Is learning in science lessons different from other lessons? How?
- Does the stuff you learn in science help you understand other subjects? Visa versa?
- How has this year's learning built on last's? (Acknowledging that in-school teaching ended in March)
- What makes a great science lesson?
- What do you think makes a great science lesson?

General Comments:

All the children included within the Pupil Voice were polite, responsive, helpful, happy and eager to talk. They were polite both to me, and importantly to each other – waiting for others to finish and happy to agree and build on their thoughts or disagree/add a different one. Going out of their way to support a couple of members of the group who were less eager to talk. Despite it being the afternoon of the Christmas lunch, with Christmas, Santa and end of term drawing tantalizingly close - all children were engaged and very up for the discussion.

Science is a very enjoyable and well liked subject at Whitehill.

Glenn Denney | Teachers
Science staff meeting follow-up

Whitehill principles of science v2.pdf 454 KB
Lower KS2 Working Scientifically wheel.pptx 232 KB
Upper KS2 Working Scientifically wheel.pptx 227 KB

Hello all,

I have had a look at people's account on ReachoutCPD. None are showing as active, so please set yourself up an account to complete your training module - https://www.reachoutcpd.com/

Here are the other links mentioned (some we already use regularly)
https://explorify.wellcome.ac.uk/en/activities
https://www.tigtagworld.co.uk/ (I'm trying to sort out accounts for people who do not have them!)
https://edu.rsc.org/primary-science - Didn't mention this one, but very good – from the Royal Society of Chemistry
https://research-champions.com/

and

https://www.greatscienceshare.org/

I've also attached some key docume

The Taking the curriculum outside c
subjects coming your way soon!

Thanks for all you are doing to suppo

Matt Wells | Glenn Denney
Re: Science staff meeting follow-up

Hi Glenn,

Thanks for the reminders. There are some great resources here, especially the research champion

Thanks again,

Matt

The cluster meetings are encouraging as we have already implemented many of the ideas being presented. This allows me to share my experiences and encourage other teachers to try the same things.
- Glenn Denney, Science Lead

I left the HFL Science Conference buzzing with ideas. It is great to see things that we already do here, being talked about so enthusiastically. Some super guest speakers, full of inspiration.
- Glenn Denney, Science Lead

Glenn Denney | Teachers
FW: Action required: Explorify is moving to STEM Learning!

Keep a look out for this email from Explorify. It is moving home and it needs your consent to move your account over.

Thanks

Glenn

From: Explorify <news@explorify-updates.org.uk>
Sent: 02 July 2021 08:29
To: Glenn Denney <glenn.denney@whitehill.herts.sch.uk>
Subject: Action required: Explorify is moving to STEM Learning!

Don't get left behind!

Done! I would not want to lose access to Explorify – We use it all of the time.
- Tim Lord, Class Teacher

These termly cluster events are a valuable way to keep up to date with what is happening within the educational scientific community. More value is gained from the face to face clusters, but the virtual clusters have allowed us to share exciting and practical ways for teaching science during lockdown
- Glenn Denney, Science Lead

Thu 14/01/2021 17:08
Glenn Denney
ASE remote science lesson resources
To Teachers; Steve Mills - Whitehill Junior School

https://www.ase.org.uk/ase-coronavirus-hub-primary-remote-learning-resources

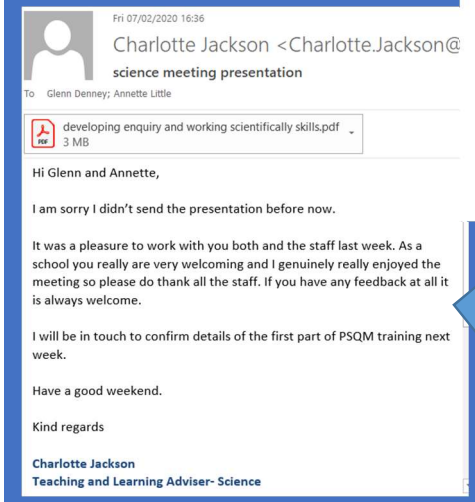
This site provides some good resources for remote science lessons. They are geared up for parents to follow, but they can be adapted for use in school and then the parents can follow them afterwards.

There are two units per year group. If there are some that match what our medium term plans say for science, feel free to use them.

Glenn

Thanks! These are really good. I have adapted them and will use them again for Year 6
– Clare Bailey, Class Teacher

SCIENCE SUBJECT LEADERSHIP


Fri 07/02/2020 16:36

Charlotte Jackson <Charlotte.Jackson@

science meeting presentation

To Glenn Denney; Annette Little

developing enquiry and working scientifically skills.pdf
3 MB

Hi Glenn and Annette,

I am sorry I didn't send the presentation before now.

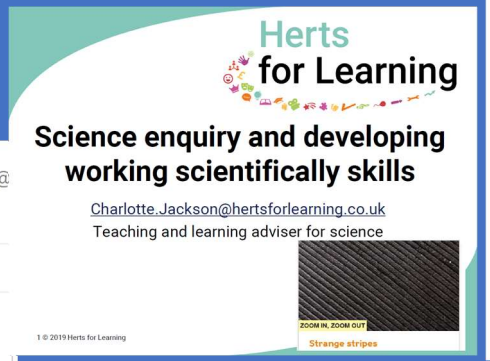
It was a pleasure to work with you both and the staff last week. As a school you really are very welcoming and I genuinely really enjoyed the meeting so please do thank all the staff. If you have any feedback at all it is always welcome.

I will be in touch to confirm details of the first part of PSQM training next week.

Have a good weekend.

Kind regards

Charlotte Jackson
Teaching and Learning Adviser- Science


Herts for Learning

Science enquiry and developing working scientifically skills

Charlotte.Jackson@hertsforlearning.co.uk

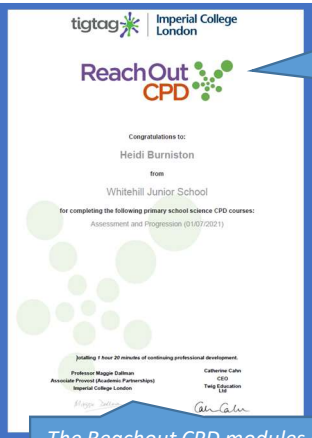
Teaching and learning adviser for science

ZOOM IN, ZOOM OUT

Strange stripes

1 © 2019 Herts for Learning

Having Charlotte in to refresh our understanding of assessment and working scientifically really helped understand what I need to do with my class. She showed us lots of fun practical ideas that can help us assess scientific understanding
- Sarah Small, teacher


tigtag | Imperial College London

ReachOut CPD

Congratulations to:

Heidi Burniston

from

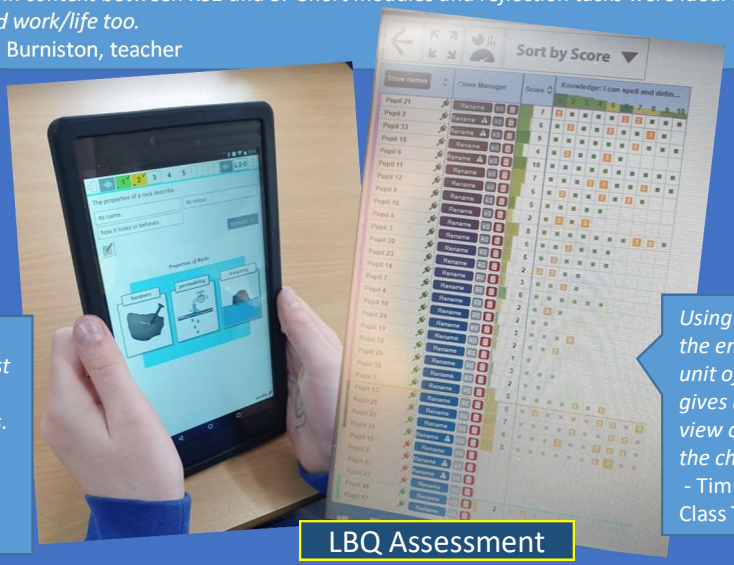
Whitehill Junior School

for completing the following primary school science CPD courses:

Assessment and Progression (01/07/2021)

The Reachout CPD modules are so easy to follow. I completed one and then just had to do another one. I'm going to recommend them to the other teachers. We should have a staff meeting where we do these and then share our learning.
- Sarah Small, teacher

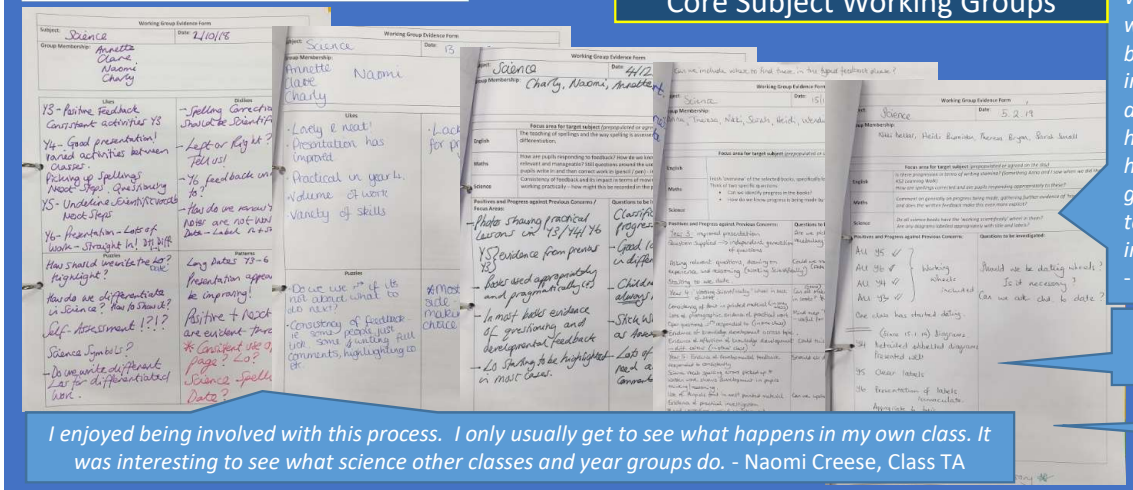
The CPD sessions were really useful - a helpful refresher of assessment opportunities and tools, and progression in skills. Particularly for Working Scientifically, especially to gain an overview of KS2 in context between KS1 and 3. Short modules and reflection tasks were ideal to fit in around work/life too.
- Heidi Burniston, teacher



LBQ Assessment

Using LBQ at the end of each unit of science gives us a great view of where the children are.
- Tim Lord, Class Teacher

Core Subject Working Groups



Working groups are a powerful vehicle for bottom-up school improvement. In contrast to directive models, working groups give ownership back to the teachers. By placing evidence (usually examples of children's work) before groups of peers and having carefully chosen questions for reflection, teachers are more actively involved in the business of whole school improvement. Working groups have helped drive improvements in the teaching and learning of scientific enquiry skills as well as deepening understanding of progression in science. Teachers have been positive about this process and report that it has helped them to build a deeper view of learning (both horizontal and vertical science content). Governors, who have been involved in some working groups, felt it gave them a better insight into the school and were impressed by the honesty and quality of reflection shown by teachers. Our school improvement partner, who is a lead Ofsted inspector, commented that this model was an important driver in raising the quality of teaching at Whitehill.
- Anna Beresford, Deputy Head

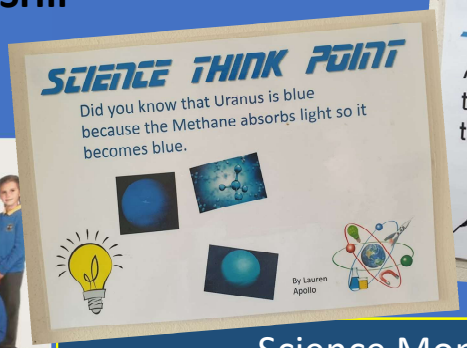
Working groups are a non-threatening way of looking at books with your peers. It allows us to critically analyse our books and improve our practise. Glenn Denney, Science Lead

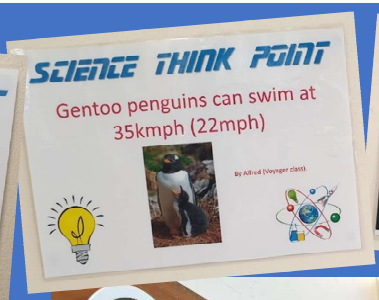
I enjoyed being involved with this process. I only usually get to see what happens in my own class. It was interesting to see what science other classes and year groups do. - Naomi Creese, Class TA

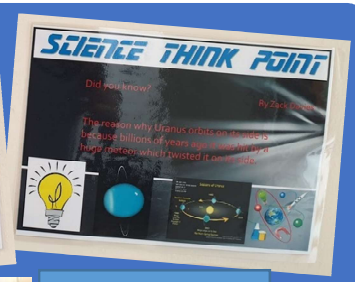
As this is an ongoing process, we are able to apply any changes and see them having either a positive (or negative) impact on the children's work. We can then make any required changes or leave the original change in place. - Theresa Bryan, Class Teacher

SCIENCE SUBJECT LEADERSHIP

SCIENCE MONITOR







Think Points and Explorify questions encourage scientific discussion in the corridors

Science Monitors

Each class has two dedicated science monitors. They work with the subject lead to check and maintain the science resources and they support their class teachers. They also create our 'Think Points' and help judge science based competitions, such as the annual SET Point 'Design a…' competition.

School Wall of Fame

I was so excited when I appeared on the Wall of Fame for my science work. Ethan, Year 4

Virtual Wall of Fame presentations

Wall of Fame

Every term, in a special celebration assembly, along side English and maths, , a child from each class is selected to have a place as a 'Star of Science' on the Wall of Fame. It is the highlight of each term.

SCIENCE SUBJECT LEADERSHIP - DISPLAYS

Lockdown Science Displays

It has been amazing to see the science done at home being showcased throughout the school.
- Antonia McConnell-Smith, Assistant Head

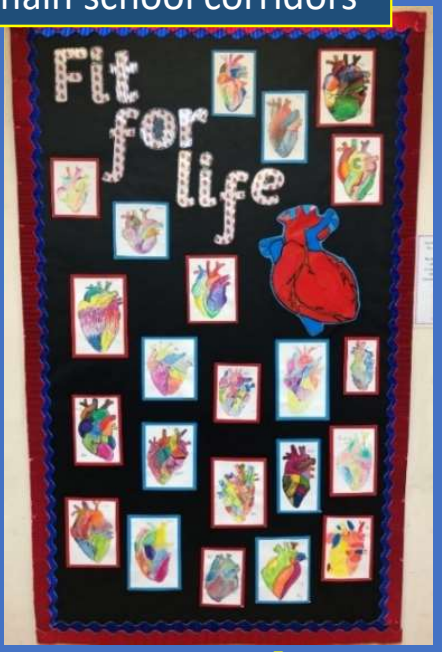
The science displays were amazing to look at. They reflected the wealth of science work carried out within the school. I'm proud to have my daughters at Whitehill.
– Debbie Wells, Parent Governor.

Displays show related to the current area of study and they include our principles of science and the areas of scientific enquiry.

Class Science Displays

I am always extremely proud to show visitors around our school – The science displays were outstanding and they were a real conversation piece.
– Steve Mills, Head Teacher.

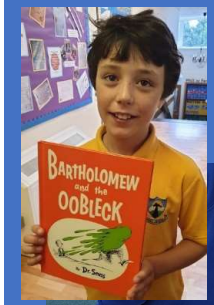
Science themed Displays in the main school corridors

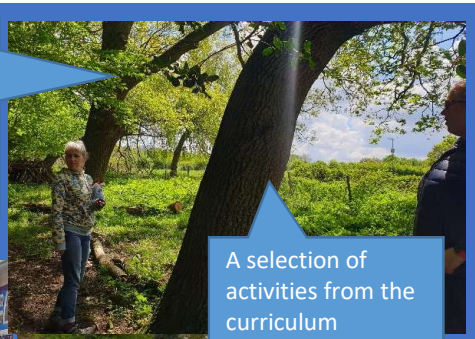


SCIENCE TEACHING

Every morning, we start the day by watching Newsround. I like the science bits. They are fun to talk about. - Ethan, Year 4

So much to share from this Curriculum Outdoors course. I cannot wait to share it with the whole school in the new school year!
- Glenn Denney, Science Lead

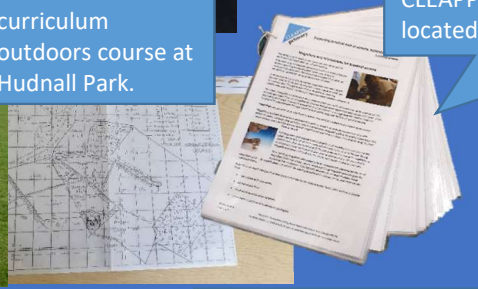


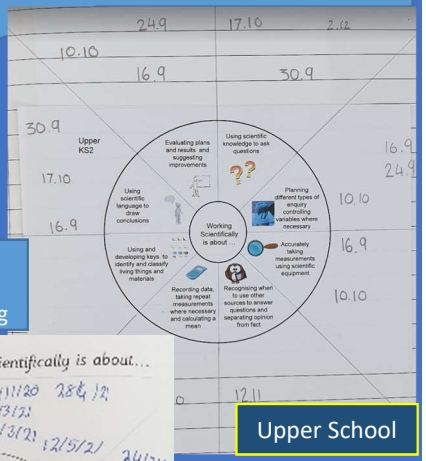


A selection of activities from the curriculum outdoors course at Hudnall Park.

This is my go to book for any advice. It is so helpful and clear – Sophie Davies, Class Teacher

CLEAPPS risk assessments and safety sheets are located with the science resources



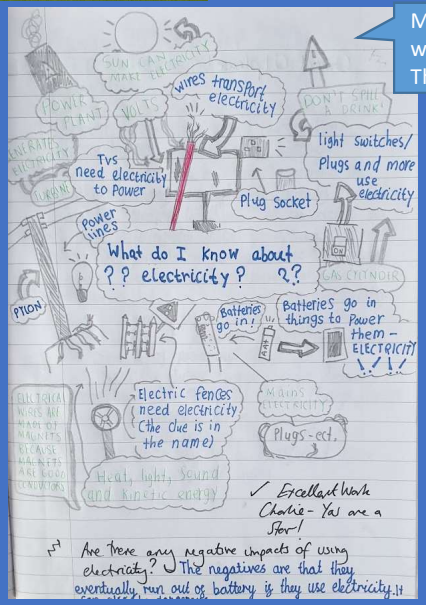


Upper School

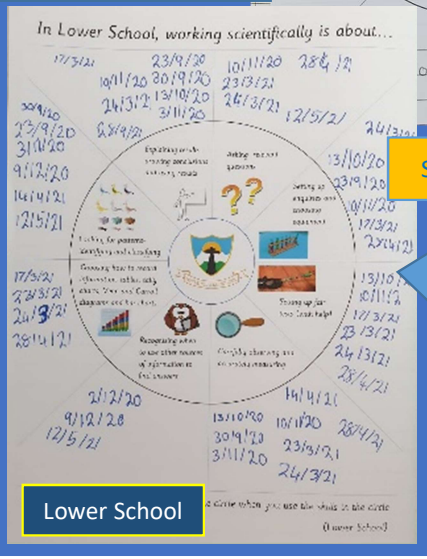
Scientific Enquiry

Caught enjoying a book about different and inspiring scientists.

Inspired by National Geographic Kids – "Do I look like this snowy owl?" – Eme, Year 4
Copies are available in the school library



Mind maps are used to find out what children already know. They help to inform our teaching



Lower School

These wheels help teachers and children track their use of enquiry skills across the school.

A selection of sciences books and magazines on display in a class

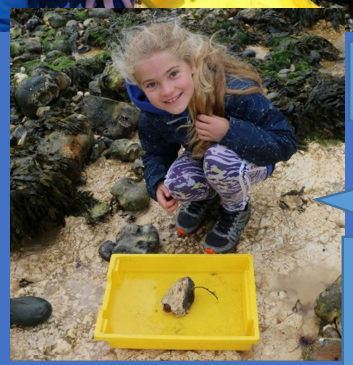
SCIENCE TEACHING – OUTDOOR LEARNING

Pattern seeking

Investigating different soil types found on the school site.

Rock pooling at West Runton

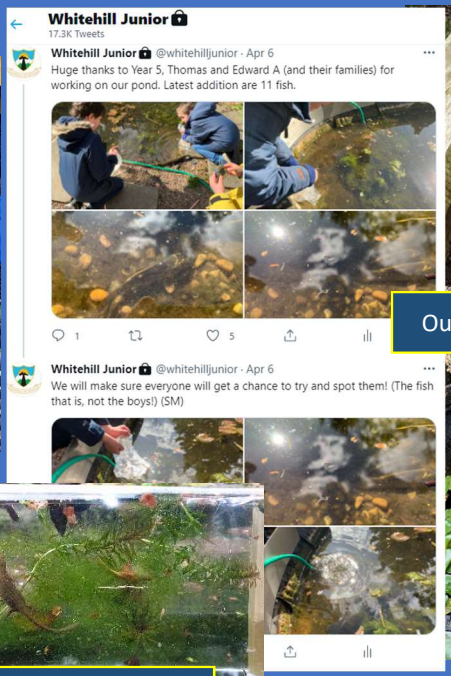
I've never been on a beach before – Sonnie, Year 4



I loved exploring the rock pools – Tallulah, Year 4

We found so many crabs in the rock pools – Ellie, Year 5

The 12th Hitchin Scouts use our field for various outdoor activities. This became more important for them during the 2021 lockdown



Our pond

Our pond viewing tank

Our lockdown vegetable patch

I enjoyed watering the plants - Jamie, Year 3

It was so relaxing working in the garden - Kamila, Year 4

We followed the river through Hitchin – Lisa-Marie, Year 6

River Studies

We measured the width and depth of the river Hiz – Quique, Year 6

SCIENCE TEACHING – OUTDOOR LEARNING

In the first lockdown, the keyworker children planted over 200 sapling trees around the school site – They took a lot of watering.

Our fenced off 'meadow area' is starting to develop. We keep adding bits of wood to the log pile and we have planted some wild flowers.
This is an ongoing project.

Our top 'planters' revisit some of their trees.

Our grounds are an asset to the school that we are continuing to develop. Our developments over the last three years and those still to be completed are enhancing our outdoor learning facilities.
- Anna Beresford, Deputy Head

Our 'wild' area

This area is being redeveloped into an outdoor science classroom – The area behind the wall is being gravelled over and picnic style tables will be placed on it. A whiteboard is going on the opposite wall. It is located near the pond and the wild area.

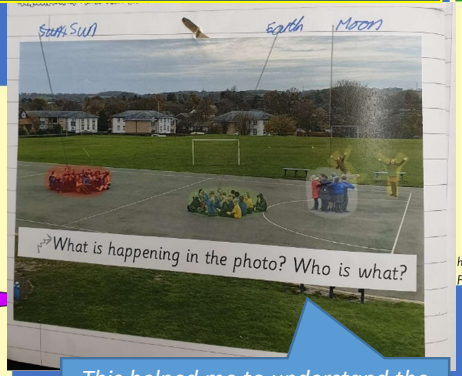
I cannot wait for this area to be complete. It will make taking lour learning outside so much more convenient. The children will love it and so will we!
- Matt Wells, Class Teacher

SCIENCE TEACHING & LEARNING

Year 5 - Modelling the orbits of the Earth, Moon and Sun

Monday 16th November 2020
LO: Can I explain how the moon and the Earth orbit and rotate around the sun?
LO: Can I explain why we have day and night?

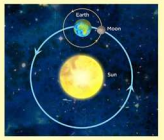
Let's go outside and see what we can learn about the Earth and Moon's orbit!



This helped me to understand the orbits of the Earth, Moon and Sun
- Eddie, Year 5

Monday 16th November 2020
LO: Can I explain how the moon and the Earth orbit and rotate around the sun?
LO: Can I explain why we have day and night?

What did we discover about the Earth and moon's orbit?



How do you think this explains day and night?

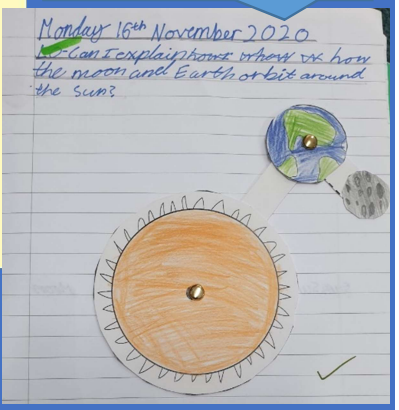
https://www.tigtagworld.co.uk/film/night-and-day-PRM00069/

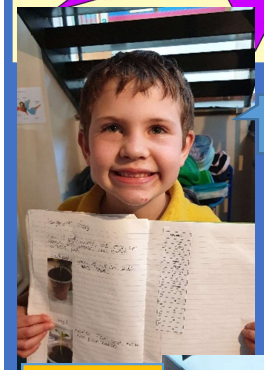
Monday 16th November 2020
LO: Can I explain how the moon and the Earth orbit and rotate around the sun?
LO: Can I explain why we have day and night?

WRITE YOUR NAME ONTO THE BACK OF YOUR SUN!

Once you have finished, you will need a paperclip to clip this onto your page in your science book.

This did the same as we did out on the playground
- Olivia, Year 5

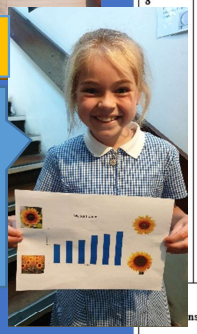




I am really proud of my sunflower work – Thomas, Year 3

Observing Over Time

I used a computer to show how big my sunflower is – Gemma, Year 3

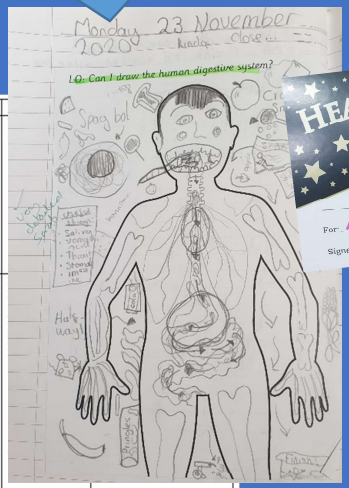


Lesson	Learning Objective	Activities	Enquiry
7	Can I show where the digestive system is? Can I label the digestive system?	Give each child an outline of the body. Ask them to draw and label the digestive system. TIGTAG – THE BIG REVEAL Why does food need to be broken down? What are the nutrients the body needs? (Link with Yr3). Why is the longer organ called the small intestine? TIG TAG – FOOD'S INCREDIBLE JOURNEY. Discuss TIGTAG – THE INTESTINES	Recording information
8	Can I identify the organs in which food is broken down? Can I describe the difference between a chemical and mechanical process for breaking down food? Can I represent the parts of the digestive system in a model? Can I use this model to explain the role of each of the parts of the digestive system?	**DEMONSTRATE MODEL OF DIGESTIVE SYSTEM.** Place biscuit in a bowl add banana using scissors (for teeth). Mix with hands to form a ball (mouth and tongue) add water (saliva). Use funnel and tube for oesophagus – spoon in food and push through to plastic bag (stomach). Add water or lemon juice as acid, cut open and place in a stocking (intestines). Use both hands to move food along. Add food colouring – bile. Push food into a bowl. Whilst conducting the demonstration ensure labelling parts of the digestive system. Discuss mechanical and chemical actions. Each group to make their own model. **In which parts of the digestive system is food broken down by a mechanical/chemical process? Where are the nutrients and water removed from the food to be used in the rest of the body?**	Gathering and recording information.

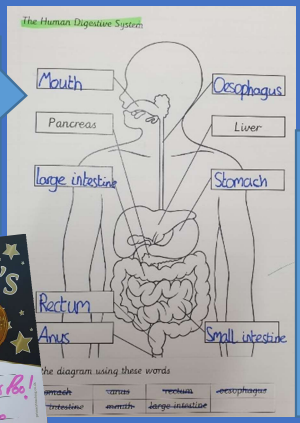
ns Connect Year 4 Where Does All That Food Go Lesson 8 & 9.

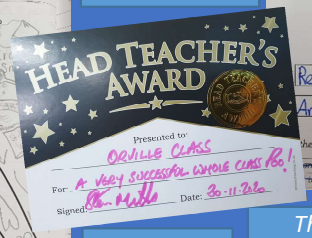
Year 4 - Modelling the digestive system

This is what I thought the digestive system looked like. I now know what it looks like in more detail – Sarah, Year 4

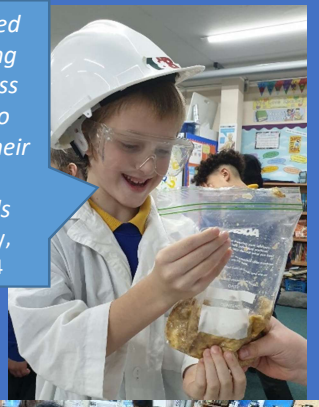


My first diagram did not look like this. This is much better.
- Eme, Year 4





I enjoyed showing the class how to make their own models
- Bailey, Year 4



This is our entire model of the digestive system. It was cool! – Leroy, Year 4

I loved it!

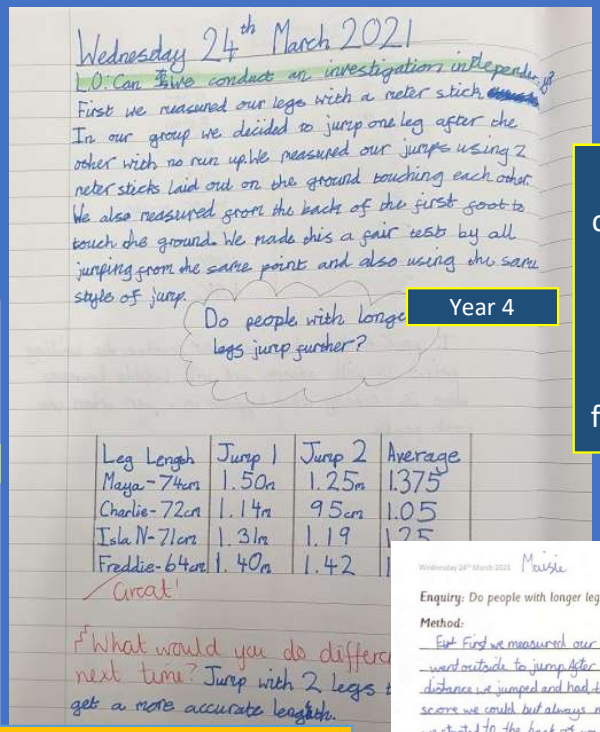
We made poo! It was disgusting!

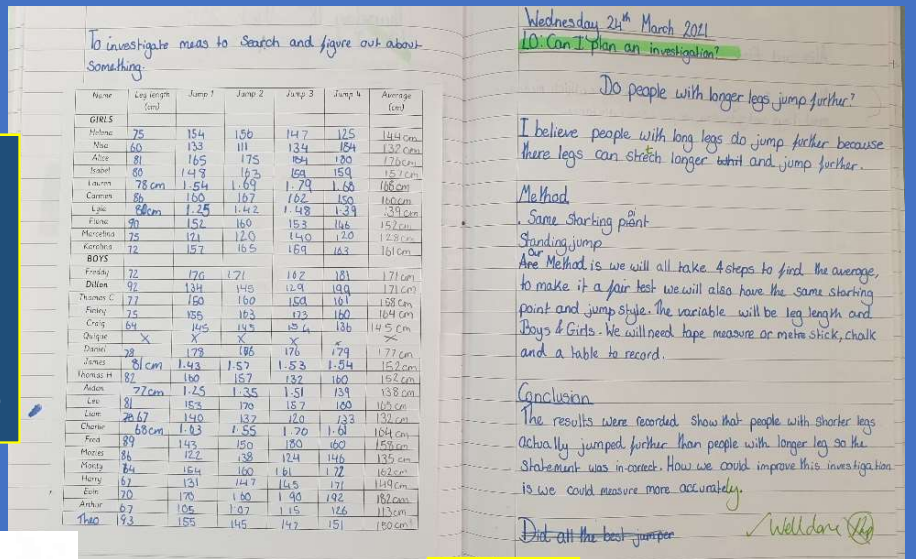
SCIENCE TEACHING & LEARNING – WHOLE SCHOOL INVESTIGATION

This child led, investigation was carried out across the whole school.

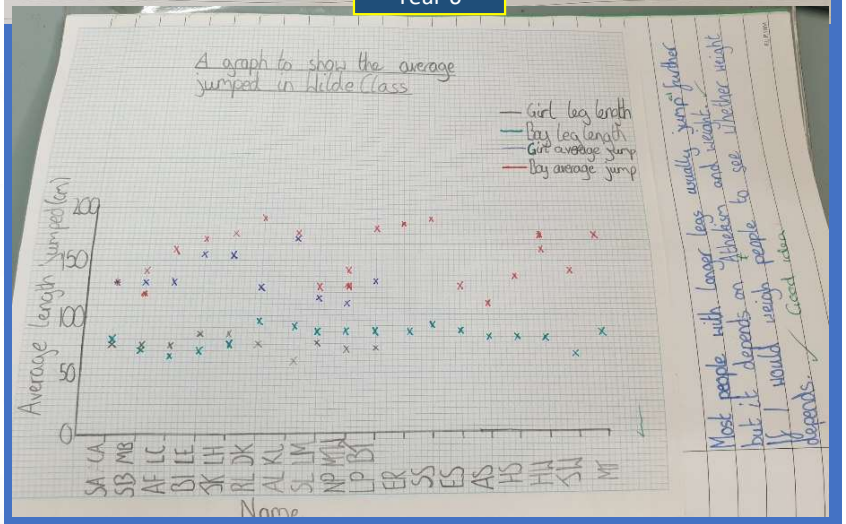
Do children with long legs jump further?

Year 4





Year 6



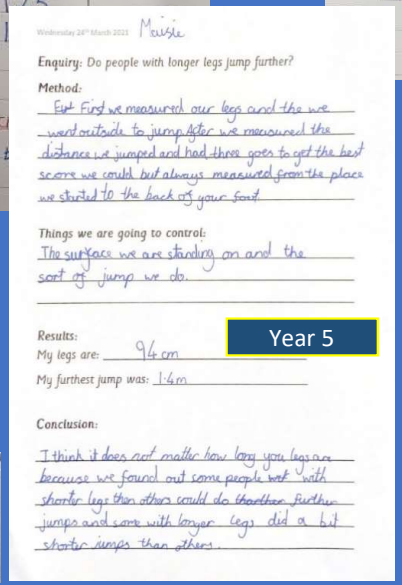
Year 3

Whitehill Junior @whitehilljunior · Mar 24

Do longer legs make you jump further? According to Aztec Class, the answer is no! The children worked so well in their groups, forming predictions, measuring leg lengths and their jumps, before analysing their results to reach their conclusion! #whitehillscience (MW)

Pattern Seeking

Year 5

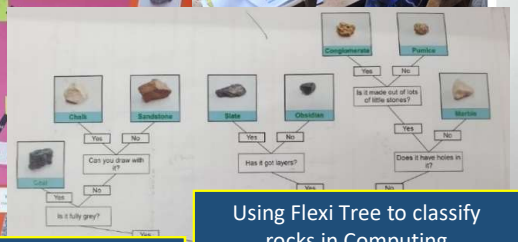


Whitehill Junior @whitehilljunior · Mar 24

Our first practise jump #DoLongerLegsJumpFurther #WhitehillScience (GD)

SCIENCE TEACHING & LEARNING

Great British Bird Watch



Using Flexi Tree to classify rocks in Computing

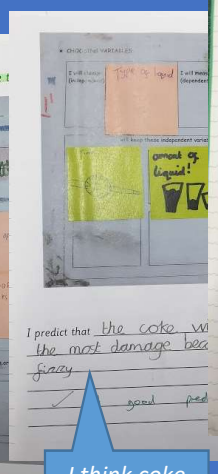
Classifying different types of rocks

Activity	Working Scientifically	Vocabulary	Resources	Assessment
EXPLORE: Ask children to think about the previous lesson where they compared rocks. Ask them to suggest words that they used to describe the properties of the rocks they observed. Make a list of the suggestions on the board. Show the children one by one four rocks you have pre-selected, such as pumice, chalk, granite, marble. **How would you describe this rock? Is it hard or soft? Rough or smooth? Crumbly?** Encourage children to think about using comparative language, such as harder or hardest. Together, as a class, create information sets about the four rocks. Label the rocks using the property labels. Pumice: rough, light, soft, full of holes Granite: smooth, heavy, hard, visible crystals Marble: smooth, heavy, hard, all white Chalk: rough, light, soft, all white Encourage them to think of 'yes/no' questions that they could ask to sort the rocks, such as 'is it hard?', 'is it rough?', 'is it white?' Demonstrate how to create a branching key to help identification. Is it hard? Yes – granite, marble Is it white? Yes – marble No – granite No – pumice, chalk Does it have holes? Yes – pumice No – chalk **ENQUIRE:** Children (acting as Rock Detectives) come up with similar questions to use to sort out their collections of rocks. Increase challenge by sorting more rocks plus children can develop their own questions for their key rather than use ready supplied questions.	Asking questions Sorting Grouping Classifying	rock sandstone granite chalk limestone marble pumice texture crystal properties rough smooth hard texture	Collection of rocks BP information cards	Can they describe the properties of familiar rocks using appropriate vocabulary to describe their properties? Can they use a key effectively to sort and identify rocks? Can they identify effective questions that they can use to sort rocks using a key?

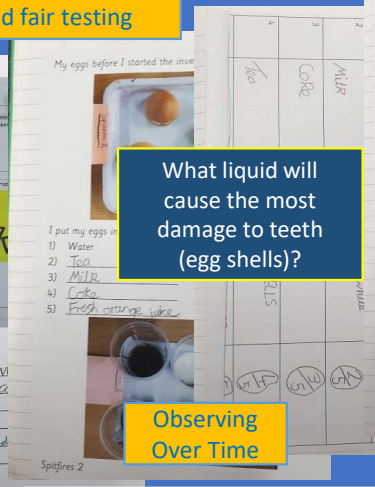
Identifying, classifying & grouping

Making honeycomb at home – Year 5

Comparative and fair testing

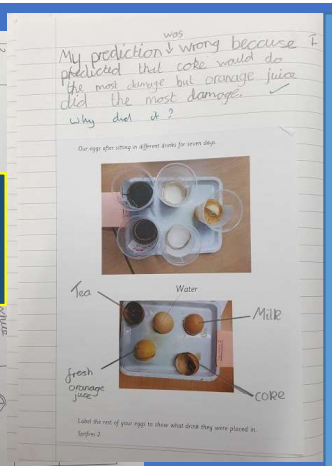


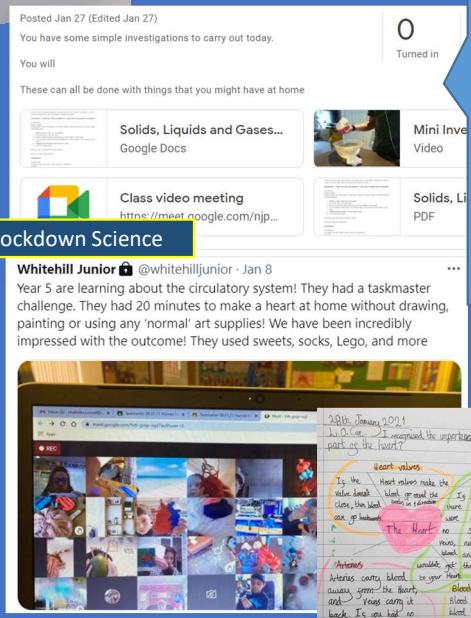
I think coke will cause the most damage because it's fizzy – Eme, Year 4



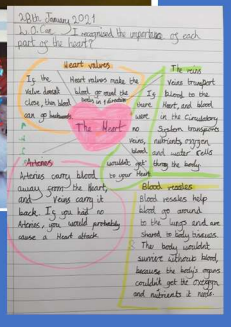
What liquid will cause the most damage to teeth (egg shells)?

Observing Over Time



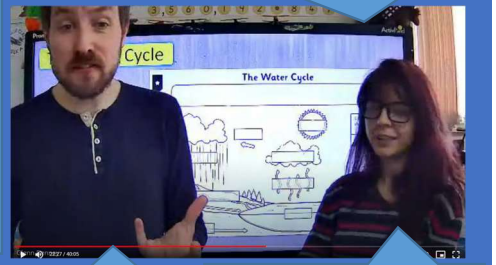


Lockdown Science



Circulatory System

I really enjoyed getting involved with the science work that was set during lockdown. - Louise Thompson, Y4 parent

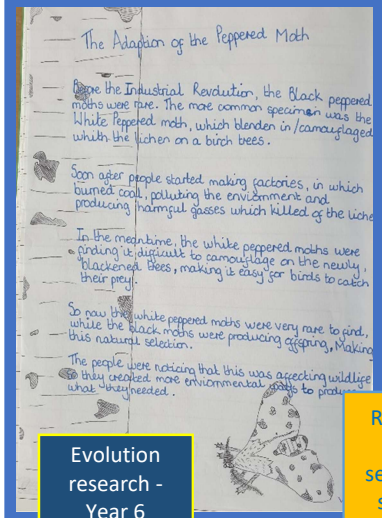


We usually have an observation fortnight where we get to go and watch other staff teach. We have not had that this year, but I found it extremely helpful watching Mr Denney teach science in our year group bubble. It gave me lots of ideas to use in my own class. - Sophie Davies, Class Teacher

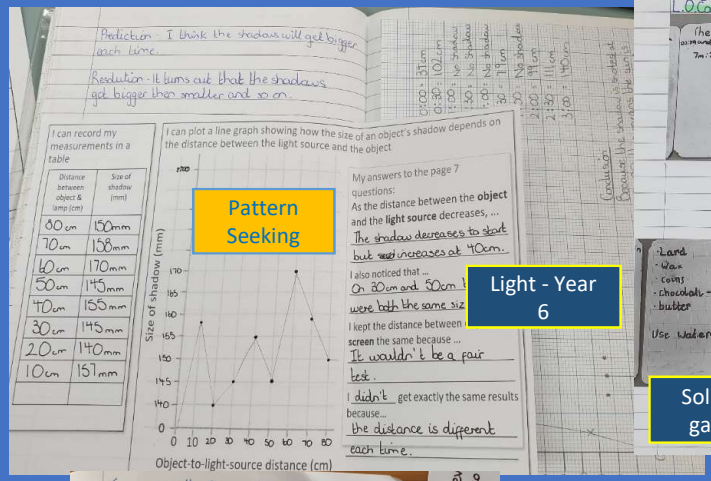
My university course did not prepare me for teaching science. Watching Mr Denney teaching science and the opportunity to team teach with him really helped me develop my understand of science teaching. - Alejandra Zullo, Student Teacher

The teaching and therefore learning we provided for our pupils during lockdown was amazing! We wanted it to have value and we wanted it to continue seamlessly from the work the pupils had been doing in the Autumn Term in school. To that end, we made arrangements for the pupils exercise books, including science books to go home. This meant arranging for collection or in some cases delivering them ourselves. By the pupils working in their school exercise books, we felt it would give more value and credibility to the work the pupils were being asked to do. The pupils invested time in completing the work and the teachers spent time responding and feeding back. From the Headteacher's perspective, it was very impressive to observe! – Steve Mills, Head Teacher

SCIENCE LEARNING - SCIENTIFIC ENQUIRY

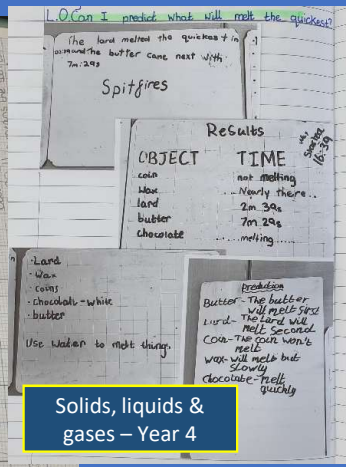


Evolution research - Year 6

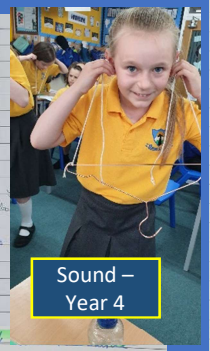


Pattern Seeking

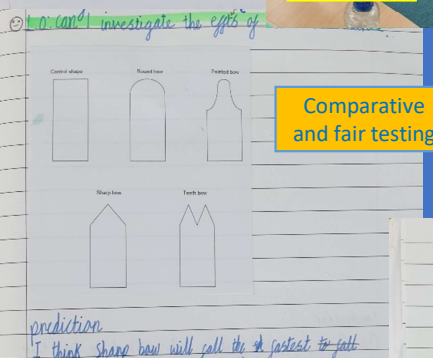
Light - Year 6



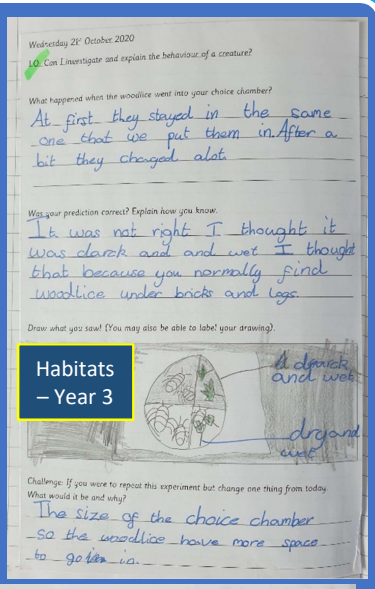
Solids, liquids & gases – Year 4



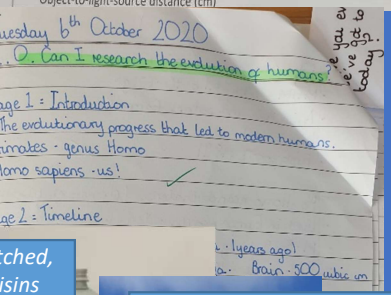
Sound – Year 4



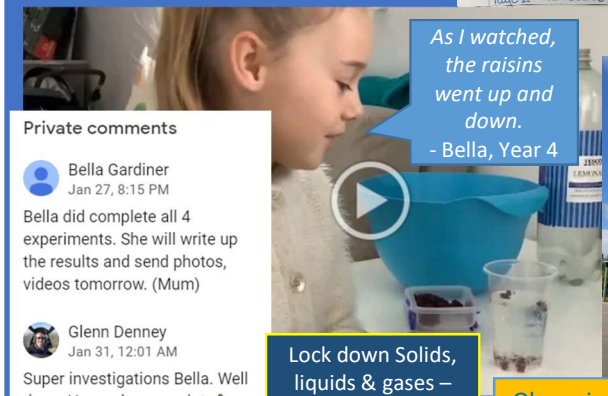
Comparative and fair testing



Habitats – Year 3



Research using secondary sources

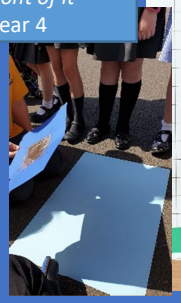


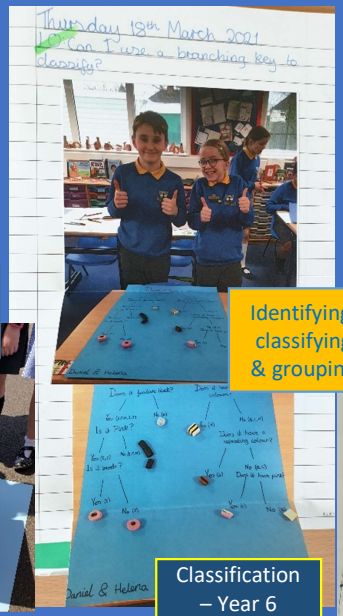
As I watched, the raisins went up and down. - Bella, Year 4

Lock down Solids, liquids & gases – Year 4

We saw the sun change as the moon went in front of it - Summer, Year 4

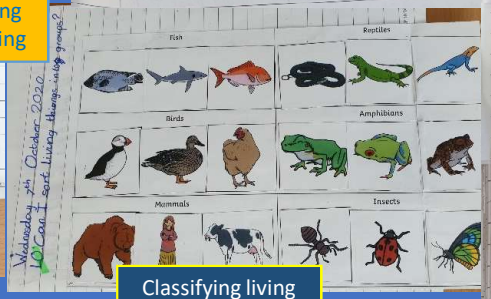
Observing over time



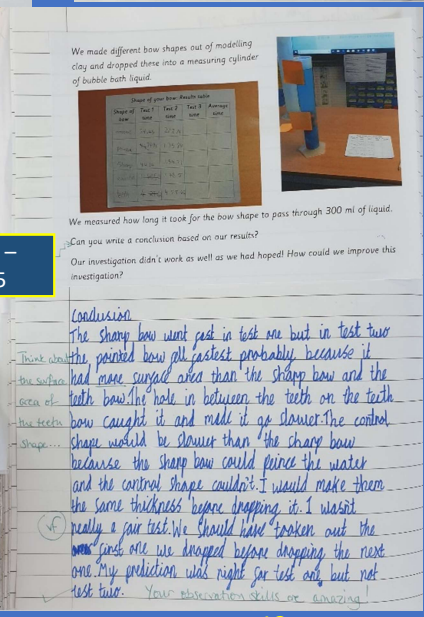


Identifying, classifying & grouping

Classification – Year 6

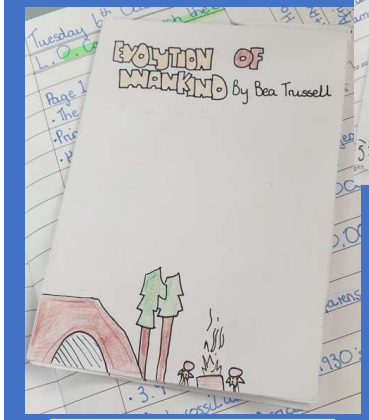


Classifying living things – Year 3

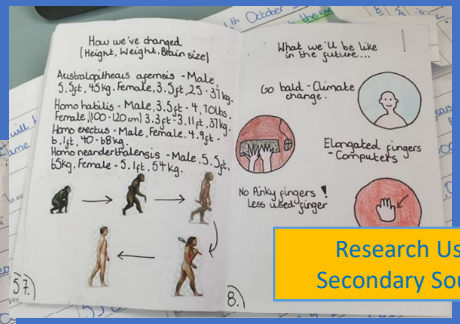


Forces – Year 5

SCIENCE LEARNING – CROSS CURRICULAR

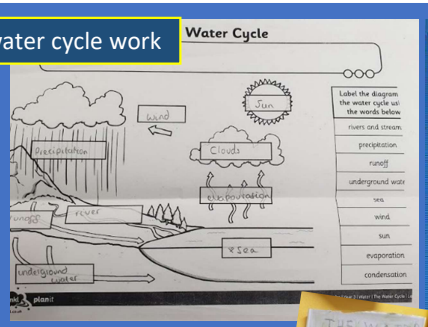


Year 6 Evolution



Research Using Secondary Sources

Lock down water cycle work

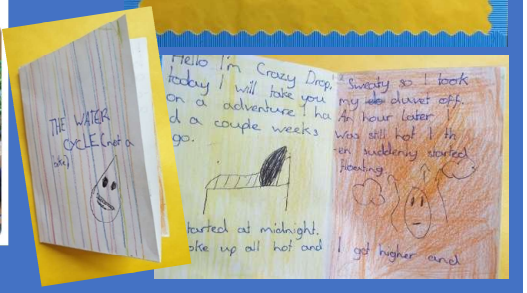


Year 4 Water Cycle

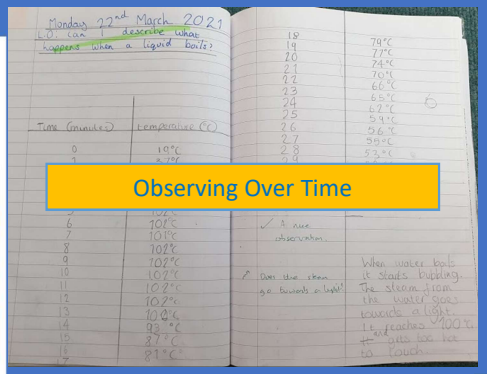
Year 5 Life Cycles

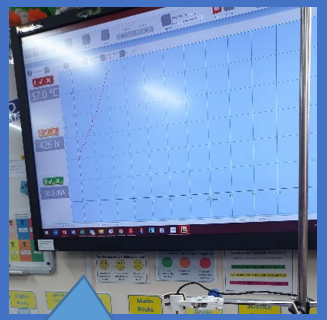
Transition – Plaster of Paris (SL&G) dinosaur foot prints

Year 3 Rainforests

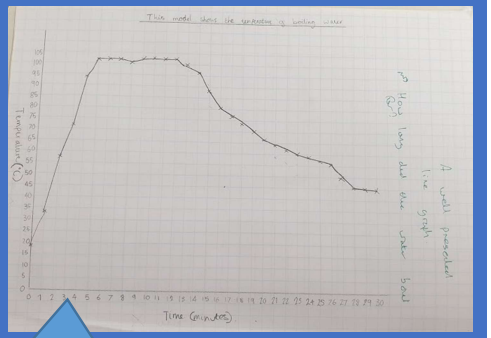


Year 4 Solids, Liquids and Gases



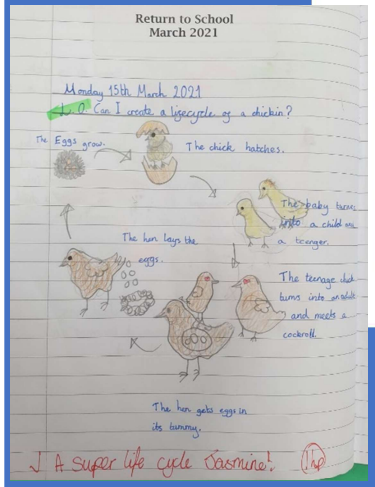


Using data loggers to collect continuous data



Presenting the data in a line graph in maths

SCIENCE LEARNING – LIFE CYCLES



Year 5 chicks

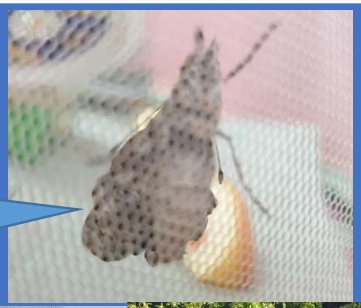
Observing Over Time

This is certainly one of the highlights of Year 5 for both the pupils and the staff!

What a great opportunity to be able to see the life cycle of a chick right before our eyes alongside our lessons about Life Cycles in Science.

It gives us great opportunities for discussion and for cross-curricular work; we always make a 'Chick Diary' which the pupils write in everyday to show and record the development and growth of the chicks from being in the egg to being a 10-day old chick.

It is also great the impact it has on the atmosphere in the classroom... I've never known it so calm with the children not wanting to disturb the chicks!
- Charley Cornell, Class Teacher



Being able to study the life cycle of animals in person, really helps children to understand this concept.
- Glenn Denney, Science Lead

Year 4 butterflies

Observing Over Time

Whole school – frogs and newts

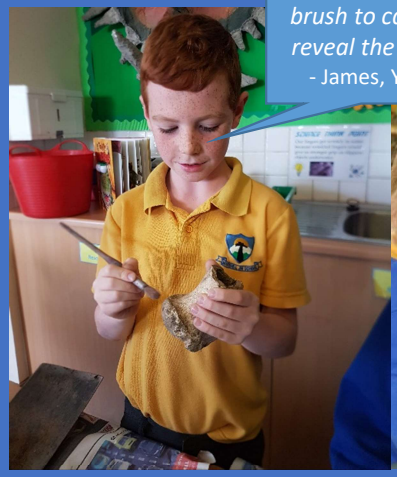
Year 3 fish

WIDER OPPORTUNITIES

It's a dinosaur skull!
- Finley, Year 4

Dino Dig

Year four get the opportunity to become palaeontologists. Bones are buried somewhere within the school grounds each year and the children discover them as part of their topic work. They use their enquiry skills to find out what they have uncovered.



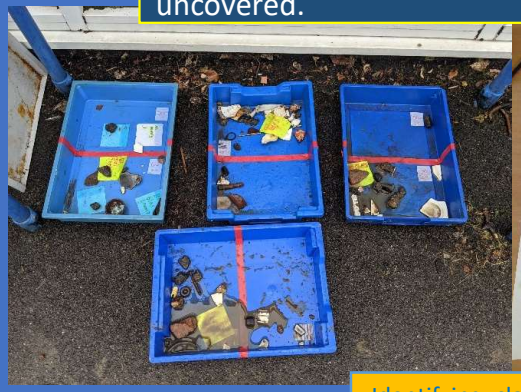
I liked using the brush to carefully reveal the bones.
- James, Year 4

The children are in awe of their discoveries. The learning possibilities are endless.
- Sophie Davies, Class Teacher

I found a worm!
- Alexander, Year 3

The Big Dig

Year three, become archaeologists and as part of their topic work, they excavate a small section of the school grounds to see what they can discover about the history of our site. They use their enquiry skills to find out what they have uncovered.



We found a really old coin (it was from 1996!)

Identifying, classifying & grouping

WIDER OPPORTUNITIES - YEAR 5 SPACE WEEK

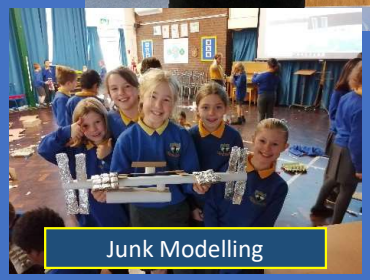
Year 5 - The National Space Centre

Space week and the sleep over helps us to cover beyond what the Science National Curriculum states and gives the pupils chance to find our more about their own individual interests in space.
Charley Cornell – Class Teacher

Pupils gain so much extra knowledge from going to the Space Centre which they bring back and are able to use and refer to in our Space lessons.

Charley Cornell – Class Teacher

Constellation cushions



Junk Modelling

Space Smoothies

First up for the pupils were a couple of (virtual) talks. Dr Miley (Mr Miley's older brother) has been part of many previous space evenings but on this occasion, he delivered the talk from his new place of work; the Alma Observatory in Chile! Closer to home, Brianna Smart delivered her talk from the University of Hertfordshire. Both explored different aspects of our solar system and beyond and both were engaging and inspiring.

Dr Miley 'zooming in' from Chile

An extract from Mr Mills's weekly blog

It is an absolute pleasure to join Whitehill Junior School for their annual space night full of activities and stargazing. Every year the children from Year 5 come armed with excellent questions about space, many of which I am still thinking about when I return to work. The energy and enthusiasm from the teachers is inspiring and infectious, the children are very lucky to have such a great opportunity to explore space and all its mysteries in such a fun environment.

Dr James Miley - ALMA Fellow and Project Research Staff at the Atacama Large Millimetre/Sub-millimetre Array

Year 5 – Space Sleep over/Evening

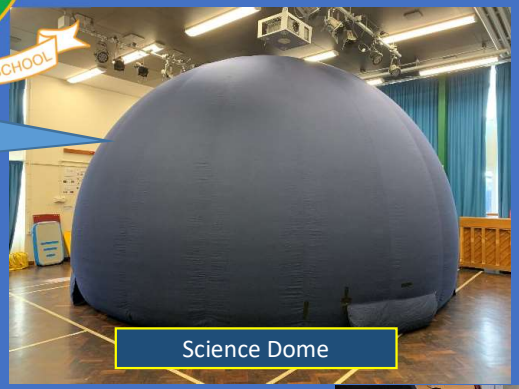
I always enjoy the opportunity to share my passion for astronomy with the Whitehill Children. The Space Sleepover is a great platform for this. One year, we will have clear skies!
- Andrew Jackson, Hitchin Girls' School Science Teacher

Star Gazing

Constellation viewers

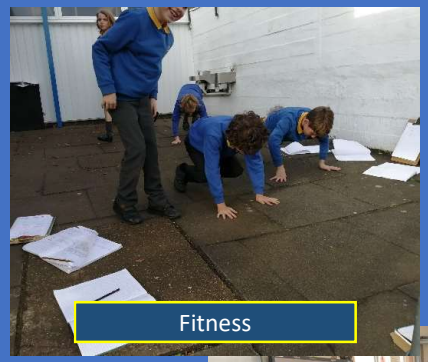
Space themed board games

WIDER OPPORTUNITIES – SCIENCE & COMPUTING WEEK



We flew through the stars!

Science Dome



Fitness

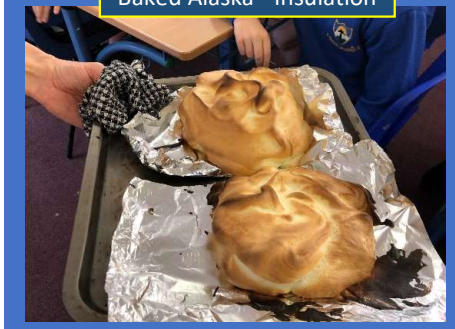
Mad Mark Science Workshops

Pyrotechnics Assembly

It's a really enjoyable project to be part of - especially the questions and interaction afterwards!
- Keith Warren
FTF Worldwide Event Management (Fireworks)

The ice cream didn't melt!

Baked Alaska - Insulation

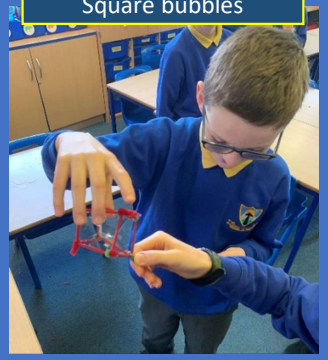


The science of bee keeping

The workshops, organised by Mr Denney, ran smoothly throughout the day and in every class the children were polite, inquisitive and asked thoughtful and challenging questions, which clearly demonstrated their prior scientific knowledge. The children showed not only an interest and understanding of the importance of bees in the environment, but also the impact that the decline of bees may have.
It was a pleasure to work with the children and staff at Whitehill
- Tim Walton

Rainbow rain

Parachutes



Square bubbles

Magnification

WIDER OPPORTUNITIES – TRIPS & VISITS

We used different sieves to filter the bits of rock into different sizes – Mya, Year 4

We looked at lots of different skulls and teeth – Elsa, Year 4

Year 4 – Natural History Museum – Dinosaurs, fossils and teeth

I saw Mary Anning's fossils – Maxime, Year 4

We searched the woods to play Bug Bingo – Maisie, Year 4

I used different soils to paint a tree – Frank, Year 4

Year 4 – Hudnall Park – Rocks & Soils

Year 3 Shepreth Wildlife Park - Habitats

We went to Shepreth Wildlife Park and adopted a red panda - Kodie, Year 3

We held different insects – Ronnie, Year 3

Year 4 – Life Long Ago and Dinosaur workshop

We looked at the habitats of different creatures and insects. Then we built a shelter – Nandi, Year 3

Year 3 – Wymondley Woods - Habitats

I uncovered fossils in the hall – Liam, Year 4

WIDER OPPORTUNITIES – CLUBS & EVENTS

The RAF came and told us all about what they do. So much was science based. It was really interesting.
- Dillon, Year 6

RAF Day

At flying club we learnt all about different forces and how they make things fly – I want to be a pilot when I grow up - Felix, Year 6

The hot air balloon reached the top of the hall. I couldn't believe it! – Lilly, Year 6

Flying Club

We saw the rings of Saturn – Samira, Year 4

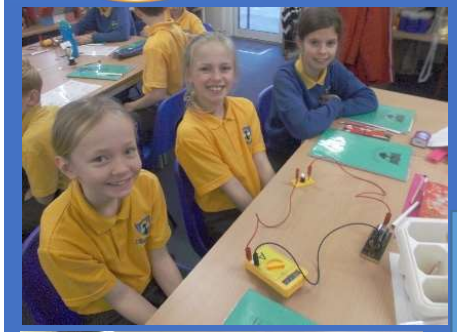
Recycled Fashion

We learnt how to combine different recycled materials to create our costumes.
- Samantha, Year 6

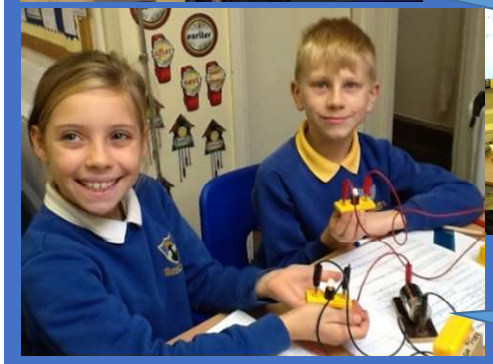
Code Club

WIDER OPPORTUNITIES - TRANSITION

I was lucky enough to be able to come in and lead sessions on electricity for Year 6 as well as a heart dissection for Year 5. It was a wonderful experience and showed how important it was to carry out scientific experiments at a young age: to increase science capital, give students a 'wow' moment and to give students the chance to use equipment that they normally would not have access to. Working with Whitehill has helped massively for all parties. Students have gotten the chance to use secondary level equipment that allows them to do so much more, parents have gained children's excited anecdotes from their school day, and I, myself, have developed an idea on the fantastic work that already goes on in our feeder schools as well as how that can better feed into our science curriculum at Hitchin Girls' School.
- Alex Goldring, Hitchin Girls' School Science Department



My hair stood on end – Lucy, Year 6



I enjoyed making different circuits – Izzy, Year 6

It certainly was a hair-raising experience. The workshop was hand-on and engaging. It explored Science at a high level and the pitch of the session was challenging yet accessible. The kit that they brought gave the session a WOW factor- the children all had the chance to touch the static ball and watch how the electricity affected their bodies and their hair. It was an inspiring afternoon....
- Clare Bailey, Class Teacher

The girls enjoyed meeting a teacher who they would also have in a couple of years when they move onto secondary school.

I saw the valves in a heart. – Molly, Year 6

It was great to have a specialist teacher come in and teach the Year with more depth to his knowledge. He could answer questions that I couldn't!
-Charley Cornell Class Teacher

Seeing, and being able to touch, a real-life heart was an amazing experience and made the topic come to life!

Pupils were pushed out of their comfort zone, but all took away new knowledge and absolutely loved the experience.

I have had the pleasure of working with Whitehill School on a number of occasions including spending the day assisting with the Potions session at the Harry Potter themed day. This provided a fantastic opportunity to demonstrate to pupils that Science is both interesting and fun. As a secondary school we are able to provide equipment and reagents not readily available to primary schools. Our collaboration provides the opportunity for pupils to learn how to use and care for this apparatus as well as the importance of safety and the use of PPE. The interaction between the schools help pupils settle in quickly after transition as the pupils see familiar faces having previously met teachers and technicians from the department. I have personally received a lot of positive feedback from parents whose children have come home excited and enthusiastic after our sessions.

At Hitchin Girls School we have seen that Whitehill pupils join us in year 7 already showing a passion for Science. Our lower school extra-curricular Science clubs have many ex-Whitehill pupils who are keen to learn more and are happy to spend their free time investigating and experimenting. They ask meaningful and relevant questions. At our annual Science fairs, Whitehill entries have always been of high quality and well received. I personally find it very rewarding and satisfying to be involved with the nurturing of scientific talent from an early age and to see the delight and enjoyment on the faces of the children as they learn whilst having fun. I am looking forward to our next collaboration.
Anna Wilson, School Science Technician, Hitchin Girls School