Primary Science Quality Mark Outreach – Round 18

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- Our principles in action
- Staff quotes
- Pupil quotes
- Other contributors
- Commentary

West Jesmond Primary School

Newcastle-upon-Tyne

Principles

Our portfolio will showcase how our principles have been applied across the school...

SL1, SL4, L1

Year 2 – Books

Staff: It is relevant to the children, their life and wider world	* Exciting Big Questions to bring in everyday science * Use of Science Capital poster with reflection - Could that be used in more lessons?
It is hands on with lots of practical activities	* Evidence of lots of practical work in Materials unit
Children are engaged	* Pictures from Materials unit * Quality of work and explanations * Use of different Investigation roles
Staff are confident in their subject knowledge and ways to deliver it in well structured, stimulating lessons	* Books very consistent across the year group * Pre knwledge grid used to start unit (Lego can, Lego is, Lego might) * Clear next steps * Stem sentences to aid conclusions -With electricity, circuit diagrams not needed til Y6 (try not to step ahead so new experiences in future units)
Children make their own discoveries	* Use of Concept cartoons as stimulus * Lego work
Children: We do different types of experiments	* Evidence of different investigation types * Use of Standing on Shoulders of Giants for Research
We do projects outside	- Next units will lend themselves for opportubities for this
We answer Big Questions	* We really liked the tile pages * LOs set as questions * 2E books had evidence of child initiated questions being used and answered

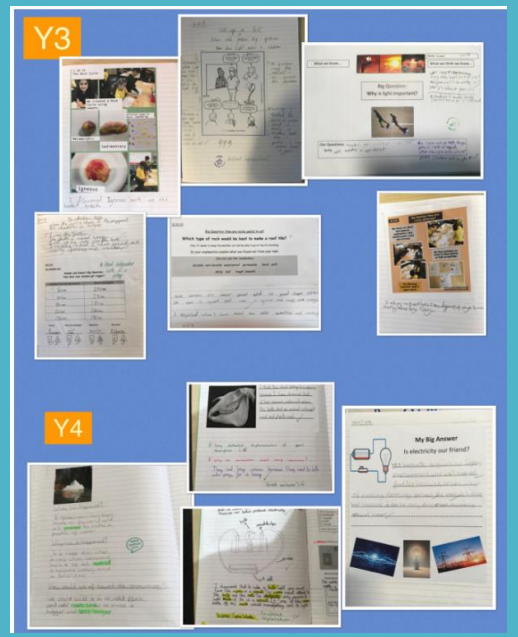
Using the Principles as the focus for the book look was a really good way for us to see how well they had been applied across school. It also gave a real purpose for looking for things that really benefit the childrens' learning experiences. **Tom Jones and Alex Mackellar, Science Leads**

The Principles have been used to assist with planning but also formed the focus for the most recent book look. These are examples of feedback shared with all staff, including examples for the books.

The Staff Principles underpin what we are trying to achieve in our science teaching. I think they provide an important foundation that makes us think beyond a narrow curriculum to the core principles that we are working towards. Relating science to the real world and giving the children the chance to enjoy practical activities and make their own discoveries are key to really engaging the children in science and to making the learning relevant and exciting. **Tariq Farooqi Y4**

It was useful to create a cohesive staff vision for Science so that even though as an EYFS team, we work outside the Science curriculum (due to the EYFS Framework), we have a clear understanding of how we can lay the foundations for whole school progression in Science.
Liz Thompson R

Children have enjoyed taking ownership of their science investigations through answering their own questions e.g. 'will my lego house be waterproof?' and 'how loud or faint can sound be?'. The children have been keen to find out how science is used in everyday life, for example, builders need to know about materials and their properties, musicians need to know about sound. **Ed Snelders Y2**



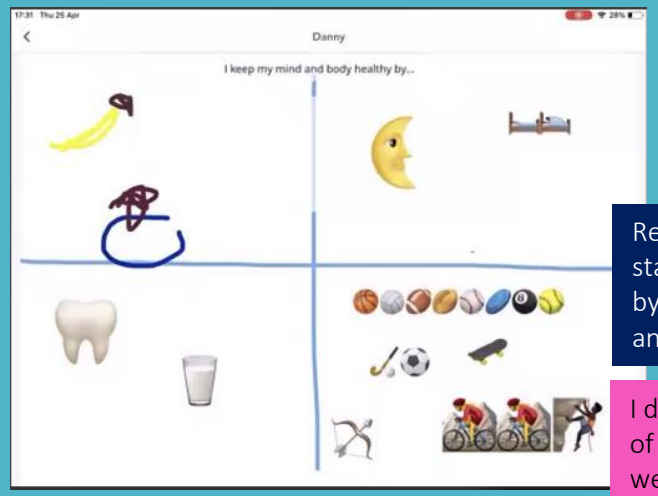
Year 6 - Books

Staff: It is relevant to the children, their life and wider world	* Links to Coding and health and safety * Electricty – real purpose to creating circuits for links to control with computing - Consider to to incorporate this more in childrens reflctions
It is hands on with lots of practical activities	* Evidence of a range of practical activities through both units
Children are engaged	* Pictures in books show this * Quality and presentation of work * Eye ball disection
Staff are confident in their subject knowledge and ways to deliver it in well structured, stimulating lessons	* Work set at a very high expectation * Often taken beyond just the objective * Different ways for children to record eg diagrams and explanations - Are children applying maths skills?
Children make their own discoveries	* Use of concept cartoons * Explanations and conclusions show this - Some write ups were about what the children did – could this focus on what they learnt, what skills they used or what they concluded?
Children: We do different types of experiments	* Clear evidence of a range of investigations * Standing on the Shoulders of Giants used for research - Is the enquiry type clear to children?
We do projects outside	* Electrical safety walk - What other opportunities can you create?
We answer Big Questions	* Most titles are framed via a Questions - Do the children have the opportunity to ask and answer tehir own questions? How can you evidence this?

It is relevant to the children

SL2, T2, WO1, WO2

When planning science lessons and science events beyond the National Curriculum we aim to make work and experiences as relevant to the childrens' own lives .



Reception made videos about staying healthy. This was shared by the Body Coach on Twitter and fed back to children.

I do lots and lots and lots and lots of sport and make sure I sleep well. **Danny Rec**

In Y6, the children learnt CPR as part of their Animals topic which focuses on the circulatory system.

I really enjoyed the CPR because I learned what to do if someone was choking or had a heart attack. It's made me really want to learn more first aid. **Maya Y6**

Our Y6's did a topic on Climate Change and groups made videos. Two lucky groups then won a competition to attend the Children's PSTT PSEC Conference in Edinburgh. We were the only school in England to attend. The groups got to showcase their videos to the other schools and the hundreds of adult delegates at the Conference.

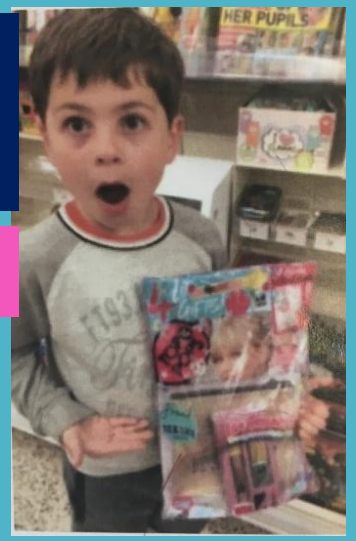
I was so pleased our video won! I enjoyed researching and then making the iMovie. The conference was really exciting. It was great to see what the other schools had done. **Dan, Y6**

Each year our Y6s attend the Big Bang which allows the children to experience the range of careers available to them in the STEM industry in the North East.

As part of Green Day, for homework Y2 had to find products with excess plastic packaging. Finn was shocked at this magazine! On the day they made videos and Tweeted them to the companies.

There is no need for this amount of plastic. **Finn Y2**

For their Seasonal Change unit and Green Day Y1 met a bee keeper to understand how important bees are to plants and the environment.



My favourite part of the week was having my arm put in a cast by Finn's dad and seeing how it gets cut off! It was so much fun. **Helena, Y2**

In STEM Week 2019 a Doctor visited Y2 and put children's arms in plaster.

It is relevant to the children: STEM Week – Science Capital

SL2, SL3, WO2

STEM and Careers Week 2019:

Raising Science Capital

(STEMsational - Science, Technology, Engineering and Maths)

1st – 5th April

Big Question: What does a scientist do?

Aim: Each child to develop and increase their Science Capital and awareness of STEM careers and share this with their friends and family.
https://www.youtube.com/watch?v=A0t70bwPD6Y

Assemblies

- Launch assembly on Friday 29th March at 10.40
- End assembly: Friday 5th April – 10.40. Science ambassador to feedback on a scientist they have met and what they have learnt from them.

Themes

MEET A SCIENTIST/CAREERS in STEM

- Children to gain an understanding of scientists and STEM in the wider world and the different careers available to them.
- Each class to have science/STEM visitors throughout the week to talk to class about their work and carry out a short activity – timetable to be confirmed next week
- Up to the teacher how you record this and how you want to follow this up- pic collage/quotes/poster?
- STEP into NHS resources/primary A-Z of careers with info- could be an additional ipad info gathering research activity?
- BBC Bitesize careers- Science in Action- lots of short videos to watch over the week highlighting careers. Other STEM careers videos too.

FIELDWORK & SKETCHBOOKS

- Each class to get outside for the day and be scientists
- Carry out a fieldwork task linked to an area of your year group's curriculum (ideas from TG) for one part of the day
- Other part of the day to be spent creating a Field Sketchbook (ideas from TG), suggested locations:
  - R: School Orchard / Forest School?
  - 1: Orchard / Forest School
  - 2: Exhibition Park
  - 3: Jesmond Dene - Pet's Corner
  - 4: Jesmond Dene- Waterfall
  - 5: Allotment
  - 6: Town Moor

Please sign up for slot on timetable in STEM Folder, so not too many first aiders are out at once. Please can you organise any parent helpers for additional adults.

WHIZZ POP BANG

- Over the week each class to take part in at least 2 or more hands on science activities – up to you what you do. (Ideas from Marvin and Milo and previous STEM/Science weeks)
- Follow up each activity with why that science is important and what jobs/careers it links to – this can be discussion or record on bags etc
- One to be done with your buddy class – please find a mutually suitable time.

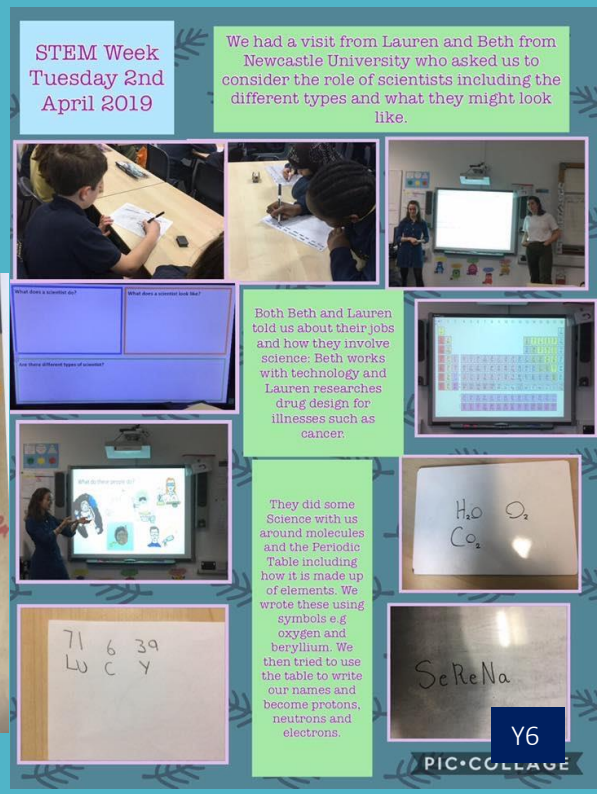
WOMEN IN SCIENCE

- Each year group to study a woman scientist - There is info in the Women in Science Book
- Do a reveal where children predict who it is and what they could have done
- Do a science investigation (could be research) about her
- Follow up work: English, art or maths based
  - R: Maria Sibylla Merian (Scientific Illustrator and Entomologist)
  - 1: Joan Beauchamp Procter (Zoologist)
  - 2: Mary Anning (Palaeontologist)
  - 3: Annie Easley (Rocket Scientist)
  - 4: Marie Curie (Physicist and Chemist)
  - 5: Hertha Ayrton (Engineer and Inventor – Electricity)
  - 6: Maria Sibylla Merian (Scientific Illustrator and Entomologist)

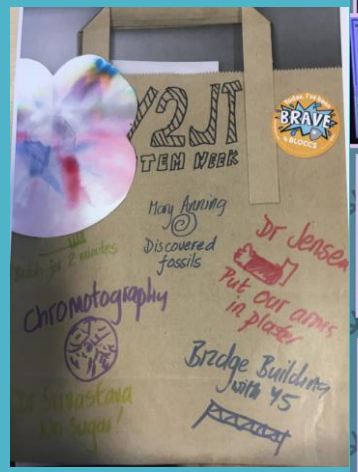
Outcomes

- Each child to be given a Science Capital bag
- At the end of each day or activity children to add a word and/or picture to summarise the activity/learning
- In one activity take and print an individual photo of pupil to take home in bags
- At end of week to take Science Capital bag home to share with family filled with outcomes of experiments, work etc
- Any recorded work in Science books
- At start and end of week children to complete a sheet:
  - When you're older what would I like to be?

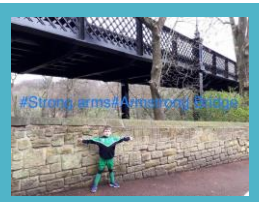
In 2019 our Science and Maths Leads with our Raising Aspirations Leader to plan a STEM Week focussing on Science Capital. Through the week the children met people from the STEM industry, many of whom were parents, looked at female scientist form the past and shared their work at home.



Each child had a Science Capital bag that they put anything the were given or created in. they also annotated their bag after each activity. This was taken home at the end of the week to share with their families.



When I'm older I want to be chemist because I have seen some experiments and it boosted my confidence. **Sumayya Y5**



Our homework competition was to find STEM that was important to the North East whilst the children were out and about in the holidays. They were then challenged to create a hashtag.

I would liked to be heart doctor now because I want to save lives. **Ahmad, Y2**

After this week I would like to be a physiotherapist because the people from the NHS seem so nice. **Emily Y5**

STEM week was a fantastic learning opportunity for children to have multiple encounters with work professionals in a wide range of STEM careers. They learnt about the skills needed for each of these jobs and skills that are valued in their workplace. It was truly an exciting, fun and engaging week which gave all children access to relevant career pathways.
Lucy Oades, Raising Aspirations Co-ordinator

After looking at the work of Mary Anning, Y2 made their own fossils.

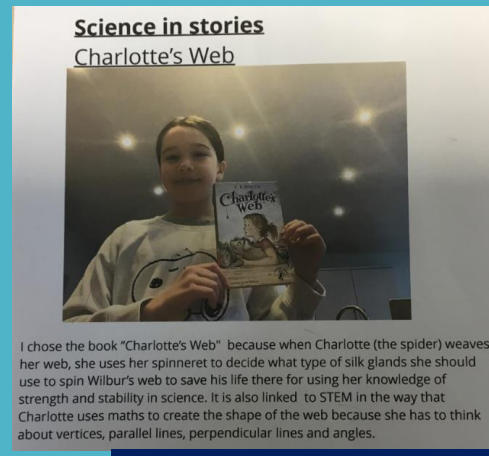
It is relevant to the children: STEM Week – Ada Twist

SL2, SL3, T3, WO2

STEM Week in February 2020 focussed on the Books from the Ada Twist series - Iggy Peck Architect and Rosie Revere Engineer. Each class spent the week helping to solve a problem for Iggy (building a bridge) or Rosie (a flying machine) linked to the story. Our Homework competition was based on looking for the science in their reading book – there was a winner from each year group who won an Iggy or Rosie project book.

Classes in Y3 and Y4 made spinners and changed materials and size to design a flying machine for Rosie.

I enjoyed STEM Week because we got to use teamwork and got to build things. I would like to have a job that involves STEM when I'm older. **Max Y2**



Y6 Homework competition winner

Y5 and Y6 created bridges. They had to be strong enough for a coded Edison robot to travel over in straight line.

I learnt that it is ok for your plans not to work because you test them and change them. I enjoyed making and testing our flying machines and I feel inspired to become an engineer or an architect when I am older. **Olivia Y3**

Y1 and Y2 found which design of aeroplane can travel the furthest.

Rosie Revere Engineer

Create a flying machine for Grandma

BIG QUESTONS

R: Can you make something fly for Rosie revere?
1/2: What's the best design for an aeroplane? (Use "paper" aeroplane style)
3/4: What's the best design for a helicopter? (Use spinner template)
5/6: Which is the best vehicle to fly Rosie and Grandma to school? (Vehicle to use a frame, consider budgets and then a comparison of class designs)

Iggy Peck Architect

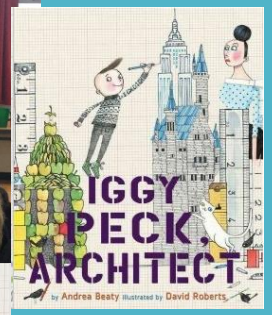
Create a bridge for Iggy

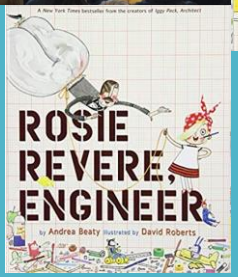
BIG QUESTONS

R: Can you make a bridge for Iggy to get to school?
1/2: What's the best design for a free standing bridge? (Freestanding structures)
3/4: What's the best design for a bridge? (Joining techniques, compare styles and structures, load bearing)
5/6 What's the best structure for building a bridge? (Use a frame, consider different materials, work in budgets)

Each class was given a Big Question to investigate. It allowed children to create their own success criteria and creative designs whilst applying maths skills and gaining DT skills.

Through the week each class met and engineer or architect or student ambassador. We launched the week with Ian Dormer, MD of Rosh and Chair of PSTT, reading Ada Twist to the whole school.



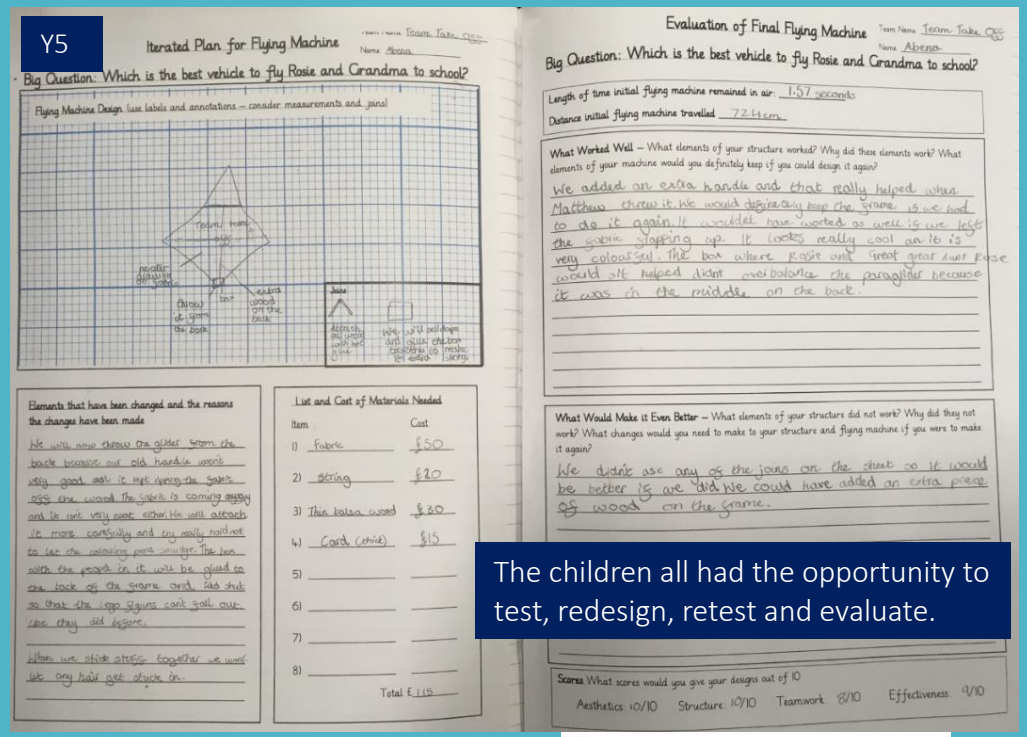


Using the Rosie Revere Engineer book was a great hook to engage the children and allowed us to explore different engineering roles and designs linked to our science capital work. Having a clear big question was great and we linked this with Rosie not giving up to encourage the children to test and redesign and improve their model planes to make them even better. **Clare Byatt Y1**

It is relevant to the children: STEM Week – Ada Twist

SL2, SL3, L3, O2

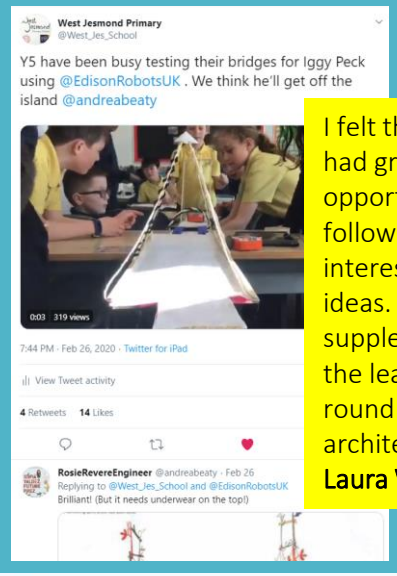
Y5



The children all had the opportunity to test, redesign, retest and evaluate.

We showcased our work on Social Media. We had great feedback from our visitors, parents and the author of the Iggy and Rosie Books.

STEM Week made me want to be an engineer. I want to be a genetic engineer but STEM Week made me interested in civil engineering. I really enjoyed building flying machines because it was really challenging and exciting. **Cillian Y6**

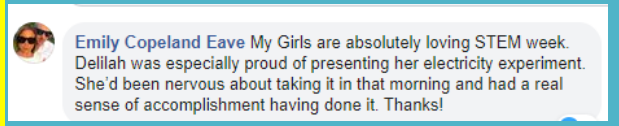


I felt the children had great opportunities to follow their own interests and ideas. Our visitor supplemented the learning round architecture. **Laura Ward, Y6**

The pupils loved testing out their ideas throughout the week. They were thoroughly engaged and excited about what each day would bring. **Helen Sykes, Y3**

I learnt there is more than one engineering job. **Oliver Y5**

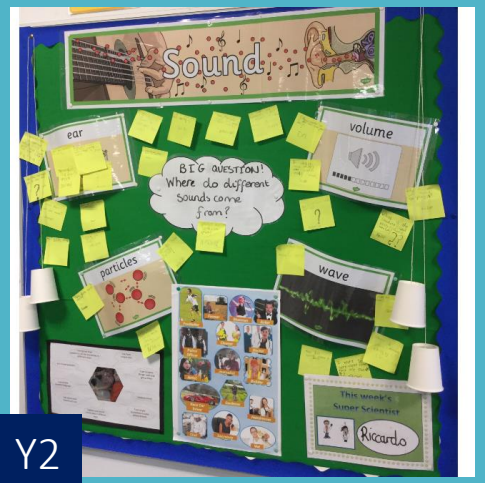
We set a family STEM homework with different activities. Parents posted these to our Facebook page.



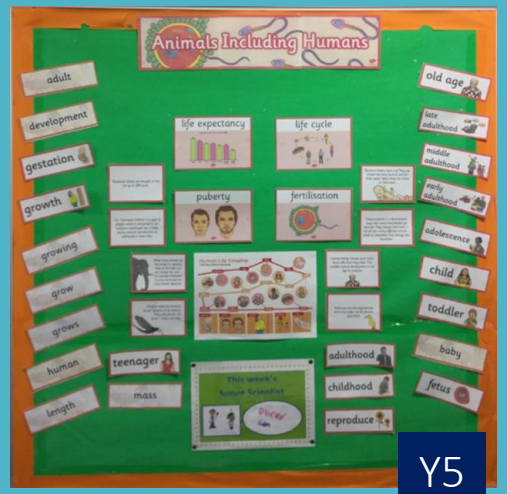
I loved STEM week - making planes was so much fun and testing them and making them fly better was super fun. **Avi Y1**

It is relevant to the children: Displays

SL2, SL4



Y2



Y5

Y3

Other displays around school promote science in other areas. For example, Rainforest in Y1, the homework project our Science Ambassadors did linked to an article in Whizz Pop Bang and nature work during our whole school Reading Week on The Lost Words project.

Y1

Each classroom has a science working wall to promote Big questions, vocabulary, children's questions and science capital.

Throughout our Materials topic the children regularly used the working wall to help with the vocabulary they needed to use. We also referred to the big question in it each week during our Science lesson.

In the first lesson the children wrote what they wanted to find out about materials – each week we looked at some of the questions to see if we had found out the answers in our lessons yet. Any we still didn't know at the end of the topic we investigated together.

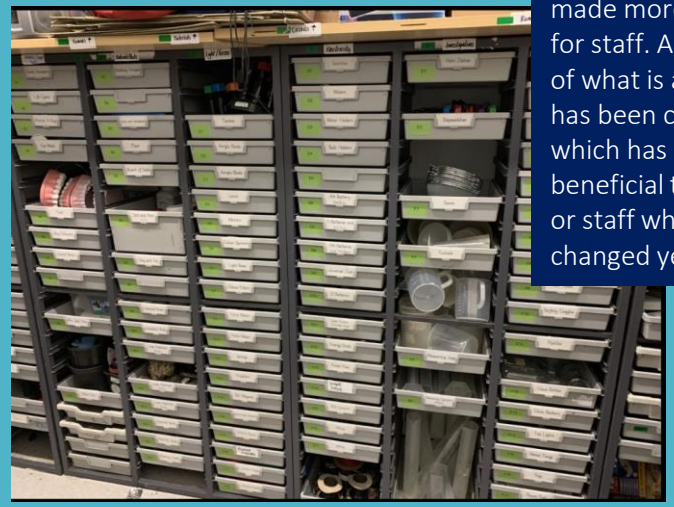
Bethany Condliffe, Y1

It is hands on with lots of practical activities

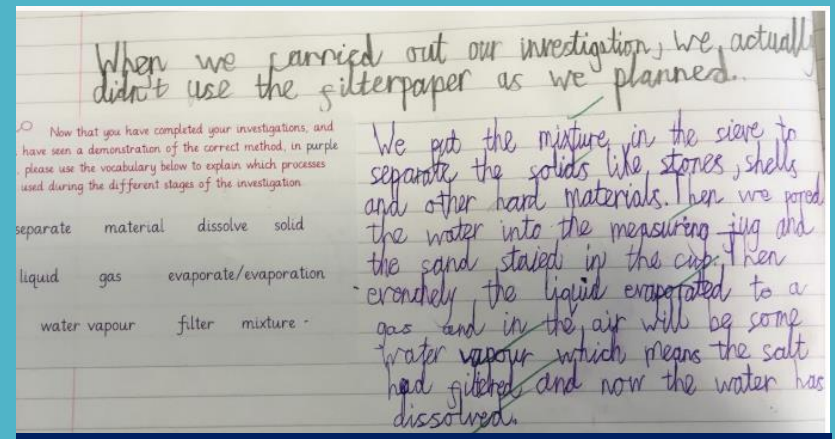
SL3, L1, T1, T3

When teachers plan, they ensure all that all lessons have a Working Scientifically objective alongside the knowledge and understanding. This ensures that children are developing these skills throughout the year.

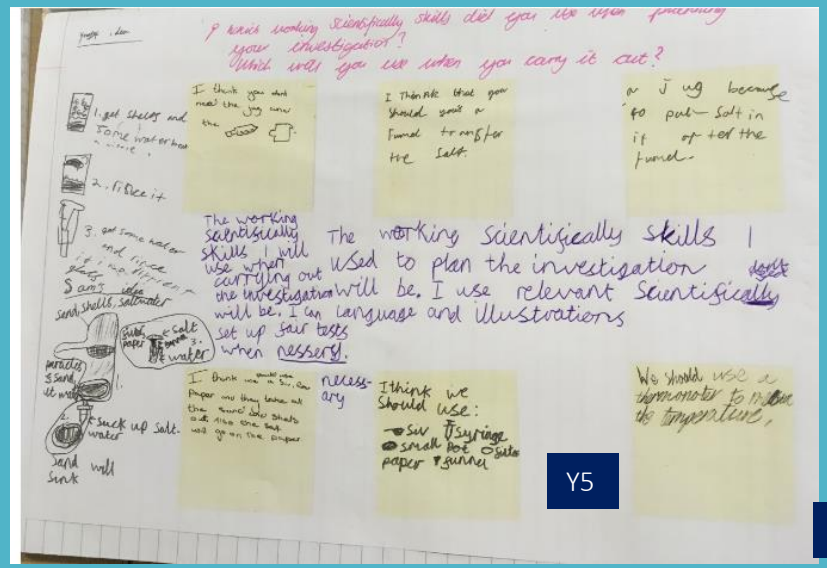
Each child has the Phase appropriate Working Scientifically skills in the front of their science books so they can evaluate their learning against this.



This year all our resources have been sorted, relabelled and made more accessible for staff. A catalogue of what is available has been created which has been very beneficial to new staff or staff who have changed year groups



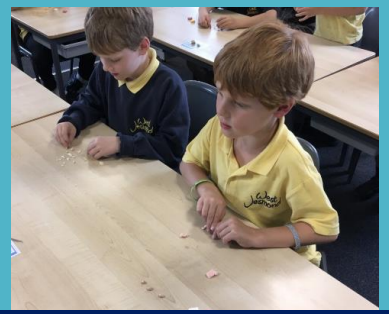
The vast majority of written work is a follow up to practical work.



Y5

We dissected an eye in y6 for our Light topic. Beforehand we had to think how to do this safely, by handling the eye with care, wearing gloves and making sure all the parts went in a special bag afterwards. **Wilf, Y6**

The Y1 Learning Guarding has practical activities to enhance the knowledge taught in science lessons.



Y3 creating the rock cycle from sweets

Y2 created their own animal with adaptations to survive the desert

Y1 identifying body parts

Children are engaged

SL3, L1, L3, T3

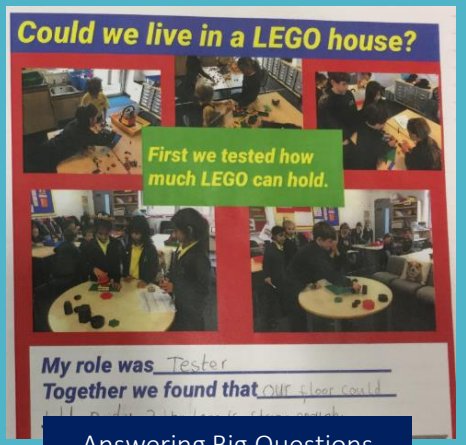
The different hands on approaches to teaching and learning in science engage the children and make memorable learning experiences. Children talk positively about the subject.

Y3 studied herbivores, omnivores and carnivores and created poo that matched the animals diet.

Reception and Y2 are visited by Animal Antics to have a hands on experience looking at animal parts (R) and how animals are suited to their habitats (Y2).

Opportunities are made for the children to share their scientific knowledge with a wider audience. Replies for organistaions are then shared with the classes.

Y5 use Quizizz at the beginning of new Science units to assess where the children are and to see any misconceptions. This will complete the same quiz at the end of the unit and compare.



Answering Big Questions give children an outcome to work towards.

We use visits to enhance our units and to give children a wider experience of science.

Y3 Light workshop at the Centre for Life

Y2 at the Great North Museum in a bespoke session looking at artefacts to show animal adaptations.

We use Investigation badges for practical work so that all children are involved and engaged in the investigations.

Y5 investigating forces .

We had to think about how to launch the spinners safely from a height. We had to make sure that they didn't land anywhere dangerous.
James Y5

Children are engaged: Dippy School

SL2, L3, WO2, O2

We applied and were selected to be a Dippy School to work for a year with the Great North Museum ahead of them history Dippy from the Natural History Museum. The project with schools and public was to encourage the public to engage more with the natural world.

The project was really successful in bringing our whole school community together and linking home and school learning. **Rebecca McVittie, Deputy Head**.

Each month the Museum's Education Team sent monthly challenges, which included weather, plants, spring, wildlife. We sent these as monthly family Challenge Homeworks so siblings and cousins could work together. There were a range of activities they could choose from. Children shared what they had done in class, parents posted to our Social Media and we had display to showcase examples in the entrance hall.

At the end of the project, when Dippy arrived, every child in the school visited the museum to see the dinosaur.

It was amazing – I had no idea how big it would be. I couldn't believe his tail was as long as our class lying down! **Delilah Y2**

Our Science Ambassadors presented a range of the Dippy Homework projects to the public and other Dippy Schools at a special Dino Nite at the museum.

I loved the Dippy Homeworks and being able to work with my child. He was so enthused and loved seeing his animations on Facebook. **Y4 Parent.**

I love dinosaurs so loved the dinosaur homework. I made lots that month! I really enjoyed showing off what we had done on the Dino Nite! **Oli, Y2**

It was great to get poutside and do a joint homework with both my children. I was particularly impressed when they both wanted to litter pick in the local park. **Y2 and Y5 Parent.**

I really enjoyed leading the project and working with the museum. A particular highlight was the success of the Dippy Homeworks and showcasing these at the museum. **Tom Jones, Science Lead.**

Staff are confident in their subject knowledge

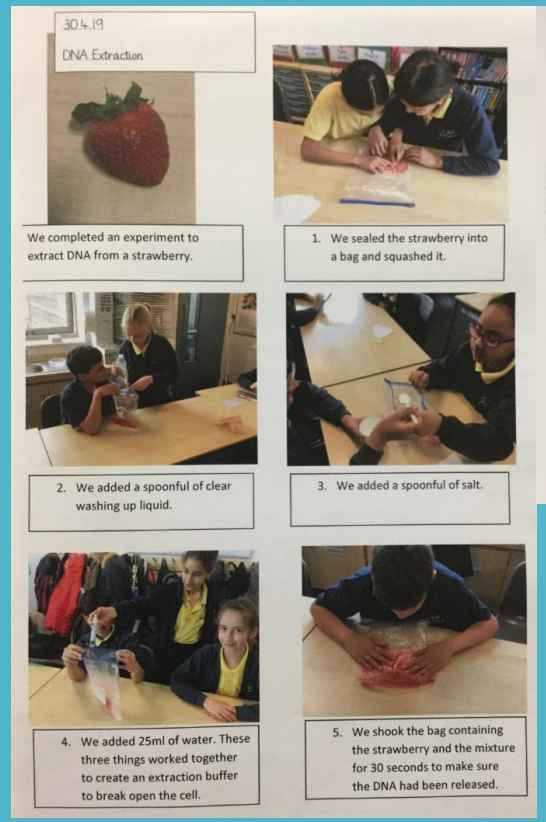
SL3, T1, T2

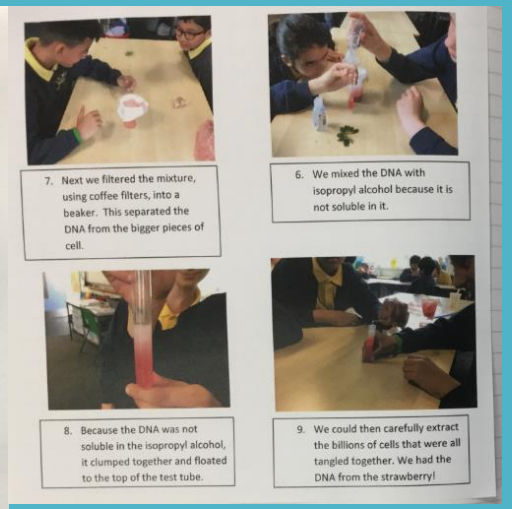
Some of the children were interested in the concept of a shadow changing size which can be difficult to understand. This related to a GDS statement in the Light unit for Y1. We investigated how the size of shadows changes when the light source is moved. We allowed the children the opportunity to explore growing shadows using torches and challenged them to make the shadow of one of their favourite toys change in size. **Clare Byatt, Y1**

Staff are confident in delivering high quality and engaging science lessons. They use a range of approaches in order to teach tricky concepts successfully.

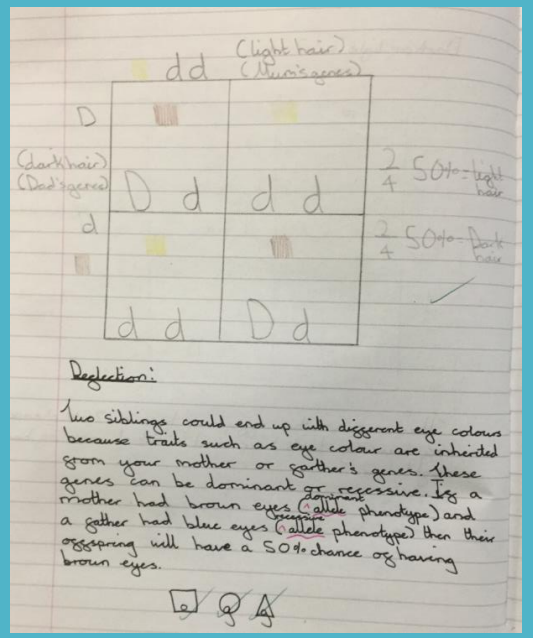
The Vitualitee app is used in Y2, 3 and 4 to investigate what's inside the body and the different systems.

Y3 created a model of an arm using rolled paper, split pins and elastic bands to model how muscles work in pairs to move bones.

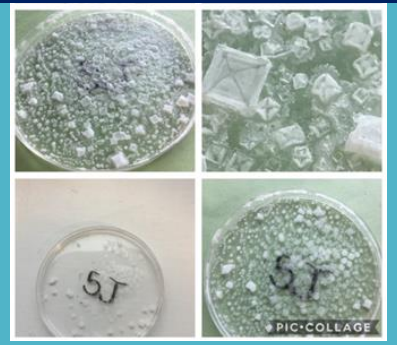




As part of the Evolution unit, Y6 extracted DNA from a strawberry and taught how punnet squares can be used to see how traits can be passed on.



Y5 linked *Properties and Changes To Materials* with our study of Vikings in Humanities. The children extracted salt from Viking sea water and then used the salt to bake Viking bread.



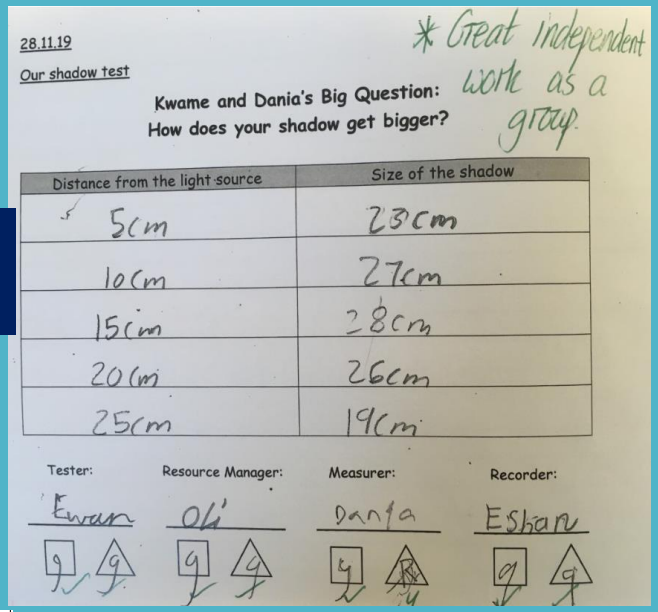
Staff are confident in their subject knowledge: supporting all learners

T3, WO1, WO2

Lessons are planned in year group teams but adaptations are made to individual classes to support all learners.

Children work in groups with defined roles to support all learners and share expertise and skills.

For our Y6 Inheritance unit all children met a dog and its mother to see inheritable characteristics and also what the dog could instinctively. These experiences are particularly important given the range of backgrounds and languages of our children.



28.11.19

Our shadow test

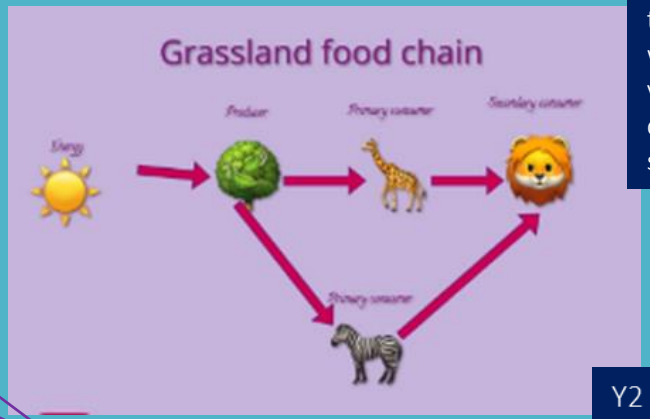
Kwame and Dania's Big Question: How does your shadow get bigger?

* Great independent work as a group.

Distance from the light source	Size of the shadow
5cm	23cm
10cm	27cm
15cm	28cm
20cm	26cm
25cm	19cm

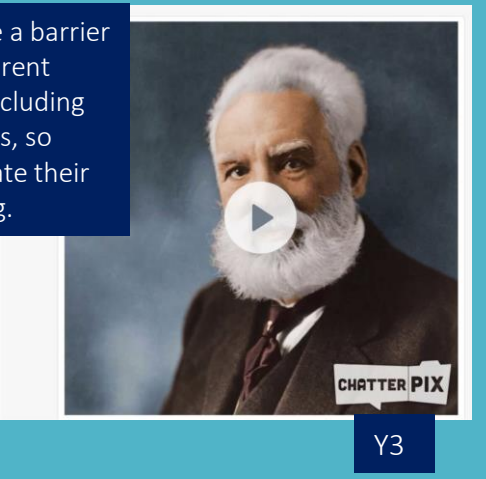
Tester: Ewan | Resource Manager: Oli | Measurer: Dania | Recorder: Esban

Week 3	LAST Task Bright Idea: Which animal skeleton do you think this is? Reveal. Show the Virtualitee App – recap bone infro from last week. Look at human skeleton – which bones can we name? (Use one from Vault?) Using plastacine in pairs. Make skeleton of a fish. Giraffe. Which bones would be similar?	Big Q: Reserach: Look at videos from BBC Bitesize https://www.bbc.co.uk/bitesize/topics/z9339j6/articles/zqfdpbk Seesaw: Pic a picture from Seesaw – predictwhat animal the skeleton is from. Can you name any bones? What would there function be? Why have they got bones like that? What does it help them do? D/N/Z – Work with DH on names of their own bones – Post It Bodies. Then add these names to animal skeleton on iPad Diving deeper: Look at someone's human skeleton from last week. Can you offer constructive feedback on what is missing orshouldn't be there? Plenary: Exoskeletons
Week 4	LAST Bright Idea – Explorify video – what is happening? Big Q: Scarlotte: How do your arms move? Recap functions of the skeleton? Show video: https://www.bbc.co.uk/bitesize/topics/z9339j6/articles/zpbxb82 Cdn to feel biceps as they contract and relax. Try on leg muscles too.	Show children how to build a model of an arm. Just use one rolled up piece of paper for the forerm for ease. Tch model with balloons – cdn use elastic bands. https://blog.sonlight.com/muscle-science-activity.html Cdn to represent this in books. Add labels or write an explanantion. Work in MA pairs. Key vocab: bones, muscles, attach, move, contract, relax DIVING DEEPER: Why is it important for you today that your arms move? PLENARY: Can cdn answer any other their Qs from front sheet. Purple pen.



We don't have set planning formats. This is an example from Y3 showing how slower graspers are supported and how Diving Deeper challenges are set to extend thinking.

Where literacy skills are a barrier to learning we use different ways to record work, including voice recording on iPads, so children can demonstrate their scientific understanding.

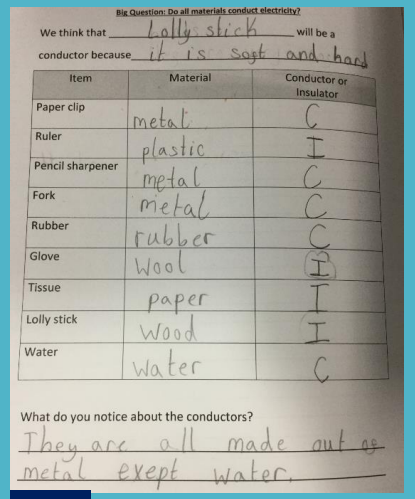


Staff are confident in their subject knowledge: Staff CPD

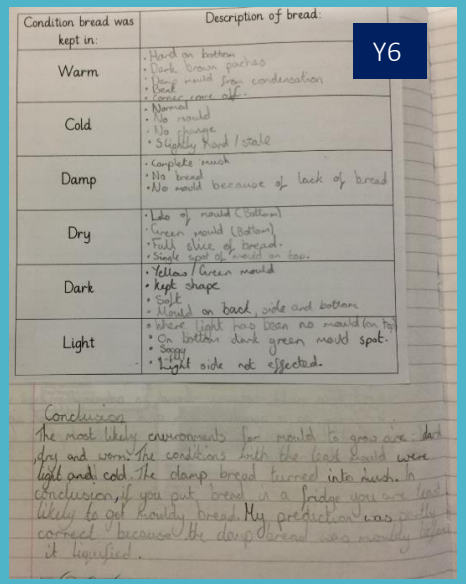
SL2, SL3, SL4, SL5, T1, T2, L1, L2

Staff have regular CPD throughout the year based on training the science leads attend and outcomes of learning walks and book looks.

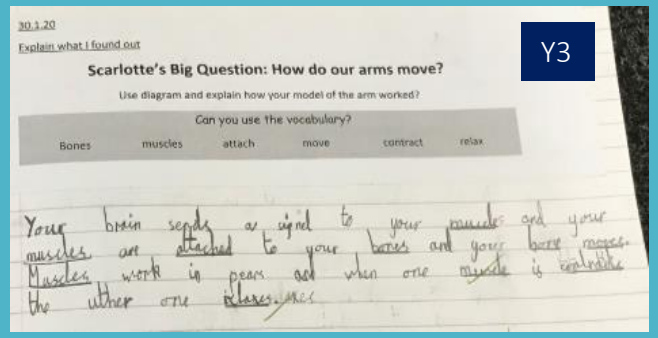
Following an activity at the Newcastle Science Network meeting, staff looked at working scientifically skills across the school in a shared work look. The main targeted outcome was to make sure there was greater progression in conclusions.



Y2

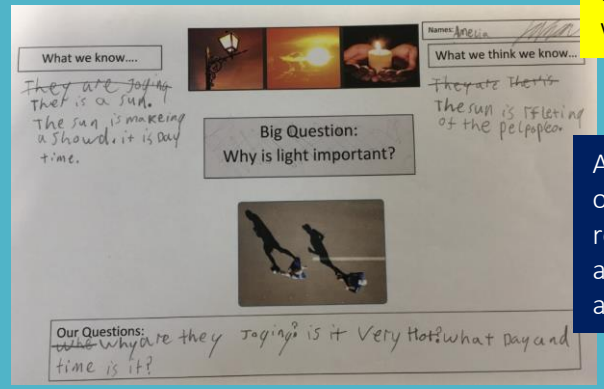


Y6



Y3

Using See Through Science within lessons has helped to engage children and has encouraged them to ask scientific questions. Y1 worked in pairs to think of questions which would help them find out what the mystery material was. **Bethany Condliffe, Y1**



An example from Y3 at the start of a unit. At the end children reflect on what they've learnt, address misconceptions and answer their questions.

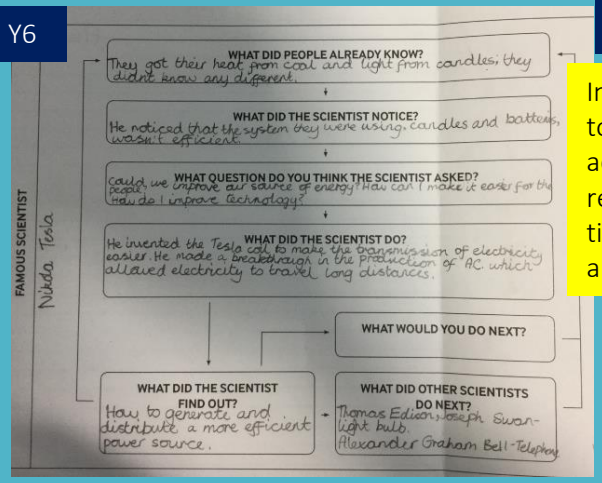
Staff were introduced to See Through Science – using images to enhance observation skills and children asking questions.

Using pictures with the children has provided a valuable stimulus to their thinking. It encourages them to think creatively, to share and to discuss their ideas. The children soon realise that it is possible to have very different ideas about the same image. The zoomable images such as on Explorify are a great way to demonstrate how scientists have to adapt and refine their ideas as more evidence becomes available. **T Farooqi, Y4**

The images have helped children to construct more in depth questions, particularly at the beginning of a unit. **Karl McGrath, Y6**

Staff have also received training on the PSTT Standing on the Shoulder of Giants research resource.

Y6



In Y5, we have used Standing on the Shoulders of Giants resource to research into the work of Spencer Silver. We found out that he accidentally created a 'low-tack' adhesive which eventually resulted in the development of the Post-it Note. Then using the timeline of his life helped children use research skills and find out about the process of being a scientist. **David Mansfield, Y5**

Staff are confident in their subject knowledge: Assessment

SL2, L2, T2, O1

Year 4	Unit: Living Things and their Habitats		Class:
	WTS	EXS	GDS
Outcomes	• Group living things and give reasons for their choice of grouping. • Use a simple classification key to group, identify and name a variety of living things (plants, vertebrates, invertebrates) • Recognise that environments can change *i.e. rubbish/storms*	• Recognise that living things can be grouped in a variety of ways • Explore and use a classification key to group, identify and name a variety of living things in the local environment (plants, vertebrates, invertebrates – bones/boneless) • Compare the classification of common plants and animals to living things found in a wider range of places (under the sea, prehistoric) • Recognise that environments can change and this can sometimes pose a danger to living things (eg floods/droughts/urbanisation)	• Explain why living things have been grouped using a certain criteria • Create a key to classify a group of living things in the local and wider environment (including vertebrate and invertebrates.) • Understand the positive human impact that can be had on an environment i.e. nature preserves and ecologically prepared parks. • Understand the sort of changes which can be hazardous to an environment and explain why these changes would damage an eco-system i.e. littering, deforestation etc.

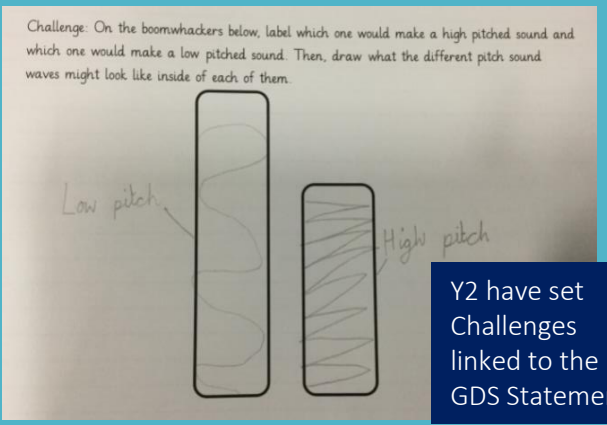
The updated GDS statements seem more in line with what we would expect from the children and also mean that there is more stretch and challenge for the more able pupils. **Karl McGrath, Y6**

The science leads from three schools in the Ouseburn Learning Trust worked together to redesign the Greater Depth Statements for each unit and streamline the Expected and Working Towards. This collaboration was very beneficial as we could use examples of work from a range of schools.

Working collaboratively really helped in terms of workload and also using expertise from throughout the Trust. It has enabled us to think more clearly about how a child working a Greater Depth would apply their knowledge and demonstrate a deep understanding. **Carl Luke, Hotspur Primary.**

From termly data analysis, the number of children achieving greater depth has increased within the vast majority of units compared to previous years. We feel this is a result of staff being able to explore core concepts in more details and children having opportunities to apply their knowledge to different scenarios rather than having to be taught "extra" knowledge with the previous statements. **Tom Jones and Alex Mackellar, Science Leads**

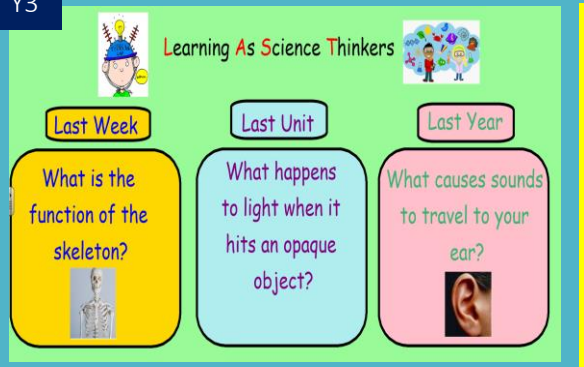
The new GDS statements have allowed the children to deepen their understanding of the concepts taught so far. They particularly enjoyed the pattern seeking involved when looking for relationships between the size of the boom whackers and the pitch they produce. They have also benefitted from the exposure to higher tier vocabulary for example, in the materials unit (rigid, opaque, flexible). **Lucy Edwards, Y2**



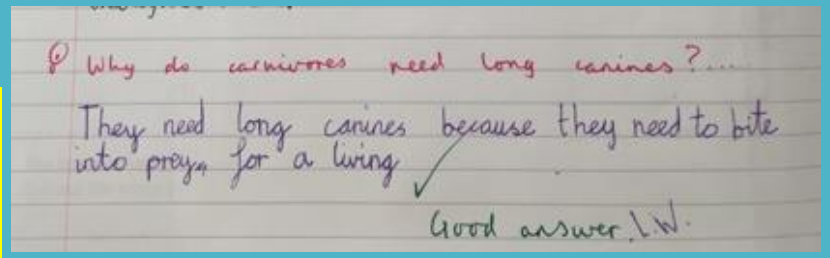
Y2 have set Challenges linked to the GDS Statements

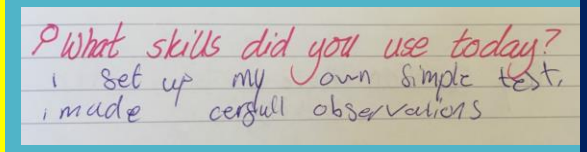
We introduced LAST to the start of every science lesson to recap prior knowledge, especially knowledge that may be needed in that lesson, to aid with children retaining knowledge over time.

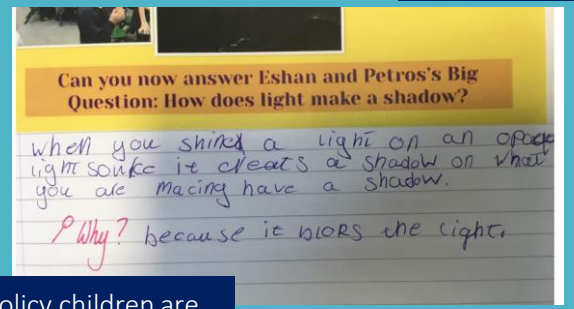
Y3



Year 6 used the rapid recall to discuss prior learning. It was lovely to see the children so engaged and so invested to share what they had remembered from our last unit on light - they surprised themselves with how much they could remember. It is a very useful assessment tool too. **Katharine Smith, Y6**







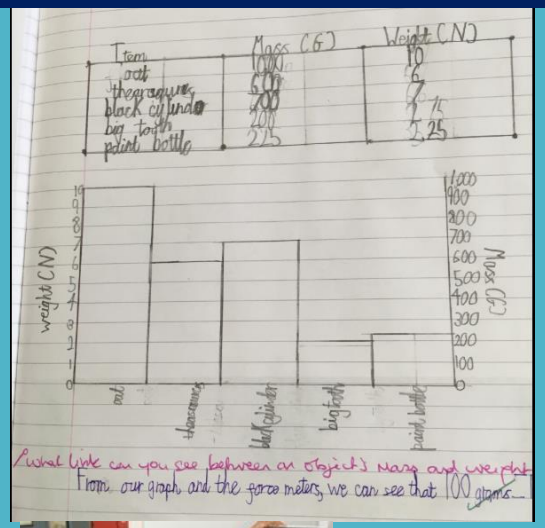
With our feedback policy children are encouraged to extend their thinking and reflect on their learning. This allows staff to gain a real insight into the children's understanding.

Staff are confident in their subject knowledge: Curriculum links

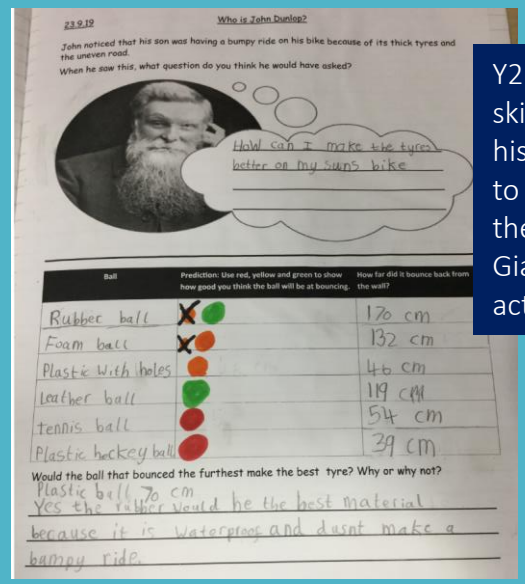
SL3, L1, L2, WO1

Science knowledge taught within science lessons is also applied across the curriculum. Likewise, skills from other subjects, particularly maths, are also applied in science.

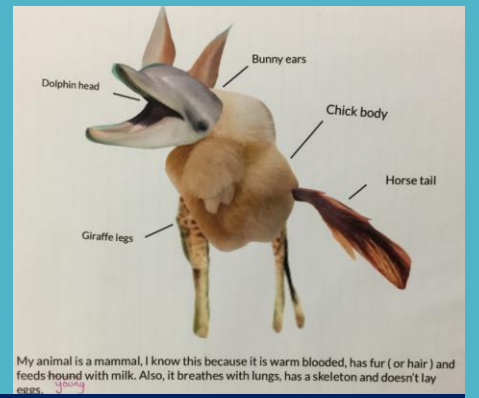
Y5 made a physical timeline to explore relationship between age and height, before measuring each other and collating into a scattergraph in their Animals Including Humans topic. They also used graphing when measuring Forces.



In Y1 the children consolidated data skills when they made 'rubber sandwiches' and tested which was more waterproof as part of the Standing on the Shoulder of Giants and investigation linked to MacIntosh.

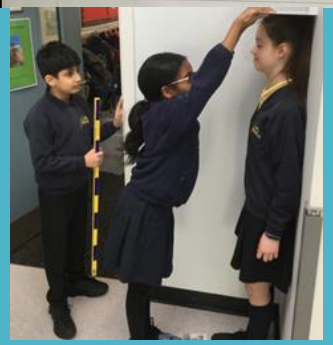


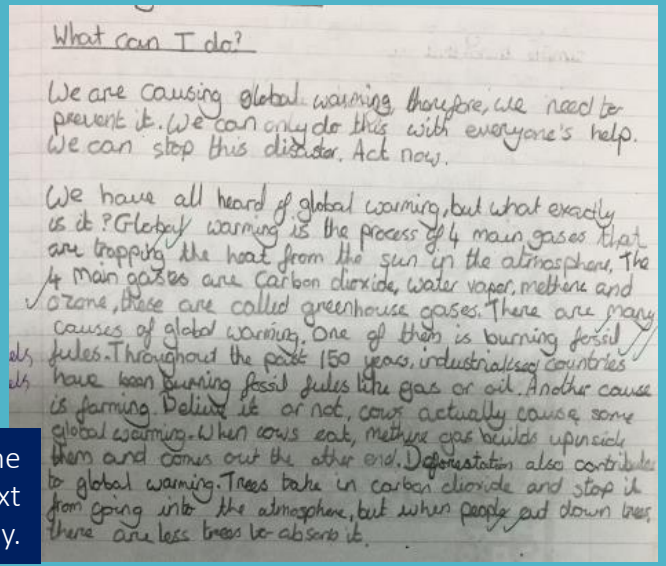
Y2 used measuring skills with their history task linked to the Standing on the Shoulders of Giants research activity.



Y6 used computing skills to create a new animal and present their knowledge of classification.

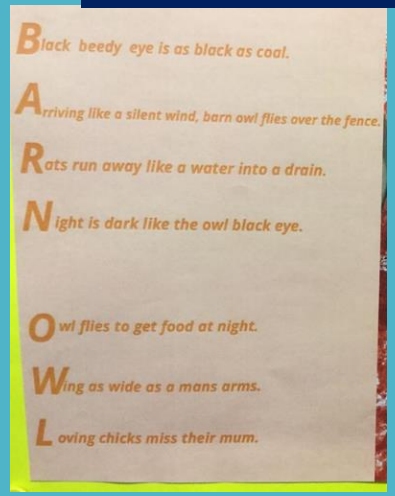
Year 3 used the work on shadows to compliment their art work.





Y6 used scientific knowledge about the environment to write a persuasive text in geography.

During the whole school Take One Book each class studied the nature related vocabulary in The Lost Word and produced poetry and art linked to the book.



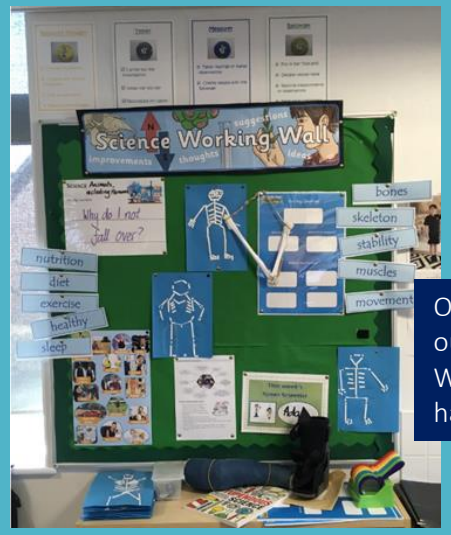
Staff are confident in their subject knowledge: Science Capital Project

SL2, L1, L4, T1, T3, O2

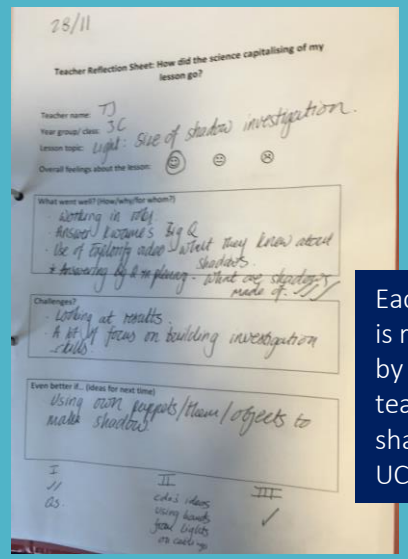
In September 2019, the science leader started a joint project with University College London, the Institute of Education, the Primary Science Teaching Trust and the Ogden Trust to undertake research into raising science capital in primary aged children. The children in one Y3 class have also completed questionnaires and will be interviewed by researchers. 22 out of 30 children agreed to take part. The aim is to produce a guide to Science Capital teaching for the primary age range similar the secondary one.

Starting the project has really made me think differently about how to plan for science capital within my class and making it more relevant to the children and not just how science is important in the wider world. It has been an interesting process in trying things out – some have been more successful than others! They have loved the ownership of asking and answering their own questions. The children have had a great buy in from bringing in things from home and being able to take work or outcomes from experiments home. Using the elements of "play" with Year 3 has also bean very beneficial and it's been amazing the vocabulary the children have used. I'm looking forward to disseminating the project throughout the school next year.
Tom Jones, Science Lead

For homework the children researched light sources they saw in the holidays. They then downloaded images in our lesson , sorted them and then reflected which light source was most important to them.

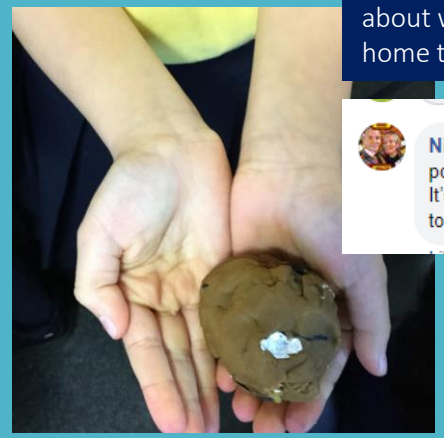


Our science working wall includes examples of things from home to supplement our unit. Ie plaster casts and x-rays of the children from when they broke bones. We also add pictures of anything scientific they bring in for show and tell. It also has references to jobs and Science capital stem sentences.

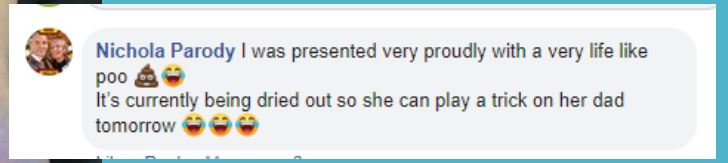


Each lesson is reviewed by the teacher and shared with UCL.

Tom has been actively involved in the 'Primary Science Capital' research project, which is a two-year long research aimed at developing a science teaching focusing on issues of student engagement and social justice. Tom and West Jesmond Primary School has enthusiastically taken up the key ideas behind the project, and tried to include them both within the lessons and their school culture. I have personally visited the school and observed his lessons, where he has made 'tweaks' to his lessons to ensure that children who might typically not be as engaged in science can also be involved. In particular, he focuses on student discussions and pays attention to students' voices during his lessons.
Meghna Nag Chowdhuri, University College London



When looking at diets of their pets, the children created poos of omnivores, carnivores and herbivores thinking about what would be in it. The children took their poo home to share their learning with family.



Children make their own discoveries

SL2, SL3, SL4, L1, T3

Staff try to ensure that children gain most of their scientific knowledge through investigations and child led discussions.

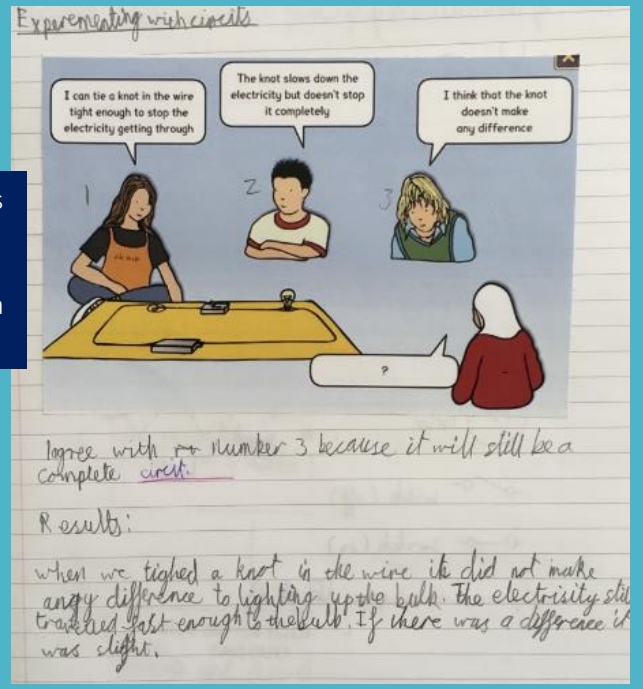
Y4 using Google Science Journal to measure sound.

Y2 Bridges workshop to support their work on materials and their Quayside topic.

I loved the workshop, being an architect was fun! My favourite part was thinking about the eco features of the building and how it would look on the Quayside. **Jenson, Y2**

Y2 worked with RSPB to see what lived in the area surrounding the school.

I had no idea there were so many living things in the Orchard. **Ahmed, Y2**

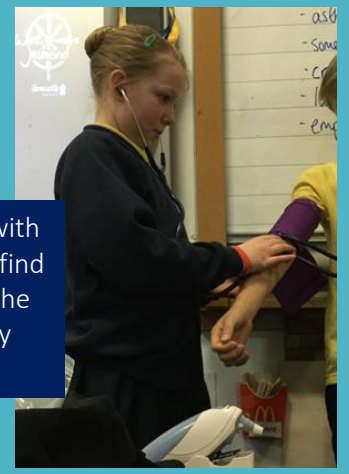


Y6 created circuits to prove or disprove the statements from a Concept Cartoon.

Do the tallest people have the longest arms? Y3 created graphs in groups to draw a conclusion.

It was such a fun lesson! **Olivia**

Reception testing the bet material to protect an egg.



Y6 worked with a Doctor to find out about the circulatory system.

Y2 have Living Eggs hatch in their classroom as part of their lifecycle topic.

We do different types of experiments

SL2, SL3, SL4, L1, T3

Following CPD on inquiry types the previous year, staff ensure all are covered throughout the academic year on their long term plans. Within a unit different inquiries will take place.

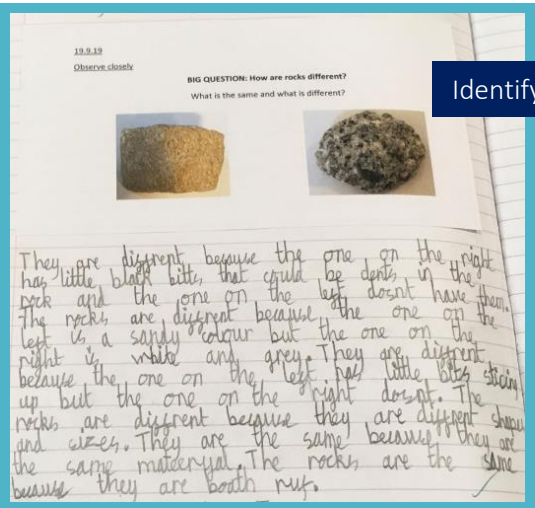
SCIENCE LONG TERM PLAN 2019-20

Year _2_	Term 1A	Term 1B	Term 2A	Term 2B	Term 3A	Term 3B
Unit:	Materials	Electricity	Sound	Plants	Animals Including Humans	Living Things and their Habitats
Big Question:	Could you live in a house made of lego?	How does a street light turn on?	Where do different sounds come from?	Who can grow the tallest plant?	Which came first the chicken or the egg?	Who lives here?
Observing Over Time				Growing from seed	Chicks	
Identifying & Classifying	Materials sort	Conductor or insulator				
Pattern Seeking		Conductive materials			Animal footprints	
Research	John Dunlop/Ole Kirk Christiansen	Creating circuits	Alexander Graham-Bell			Camels and cacti presentation
Comparative & Fair Testing	Test lego for different properties			Seeds watered with different liquids	Chick diet	
Outdoor Learning	Material walk			Orchard visit		Orchard
Trips or Visitors		Quayside trip	Discovery Museum		Living eggs	Animal Antics
Scientist	John Dunlop		Alexander Graham-Bell			

Example of Y2 long term plan

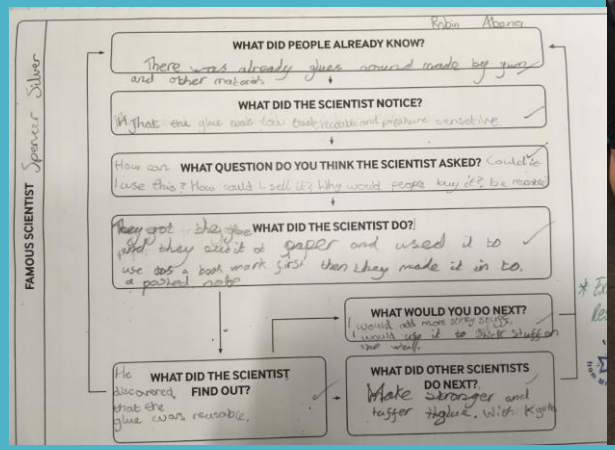
Fair testing waterproof materials in Y1

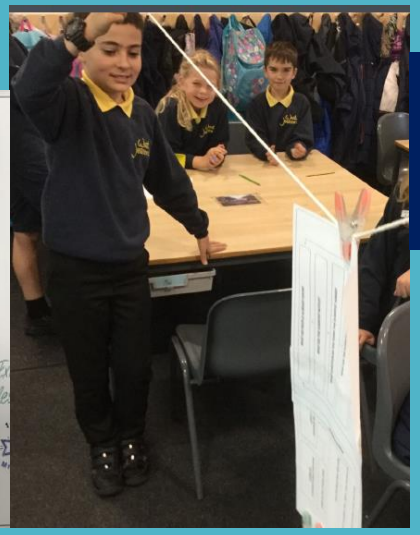
Observation over time in Y2 – seeing how chicks develop from hatching.



Identifying and classifying in Y3

Planning out the investigation types at the start of the year helps ensure we focus on each type. In our year group there are only certain units where we can do particularly enquiry types so this is useful.
Tory Tomlin, Y3



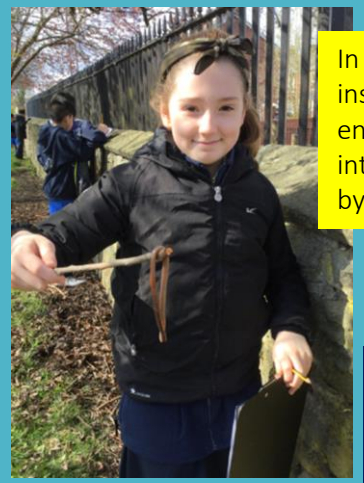


Research in Y5 using the Standing on the Shoulder of Giants resource about Spencer Silver. The children also carried out a comparative test of the strength of a glue mixture they created.

We do projects outside

L1, T3, WO2, O2

Although we have limited and urban outdoor space, we make use of the local allotments, Community Orchard and areas in the adjoining cemetery to our grounds.



In Y6 we went out to the look closely at insects and think about the study of entomology. They found many interesting things and were fascinated by the detail. **Katharine Smith, Y6**

Y1 visit the same tree at the orchard various points through the year as part of their Seasonal Change unit.

Leaves are change colour because Autumn is coming soon. **Seb Y1**.
This tree has got apples…that happens in Autumn too. **Eesa Y1**

In Y4, we answered the children's question of how far sound could travel but using a large open space next to school. **Gemma Jordan, Y4**

Y4 and Y5 have a weekly session at a local allotment where they work with volunteers from the community to help maintain the plants and wildlife. Other year groups also visit through the year to enhance their topics.

"I loved going to the allotment. It was my best day. We did lots of digging and found lots of things under the ground. I liked digging the potatoes. The long green things had lots of hair on the bottom that suck water up from the ground. **Peter R**

We made a volcano outside. I liked being outside because it was so fun. We made a crazy volcano, we made lava with hot water and we used a cup of special soda and red colouring. When we put it together, it exploded and it was huge. I loved it so much it was so fun. **Finley R**

Plans for our Memorial Garden which will be installed by the end of the academic year. This will increase the green space we have on site to support the science curriculum.

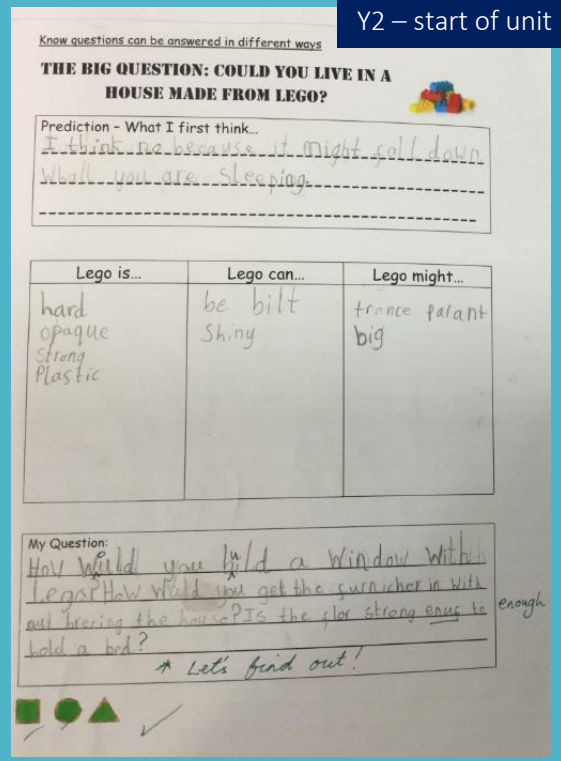
We answer Big Questions

SL3, L2, T1

The Science Ambassadors have enjoyed answer Big Questions so much they wanted it as a principal. Staff plan an overarching Big Question on their long term plan for the unit which is answered at the end. Children are encouraged to ask questions at the start of the unit and these questions are matched to objectives and used instead of learning objectives.

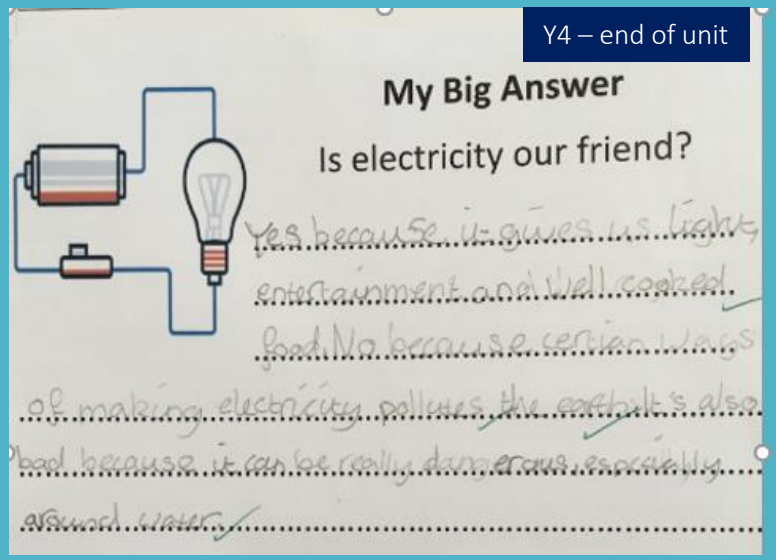
Year 1	Term 1A	Term 1B	Term 2A	Term 2B	Term 3A	Term 3B
Unit:	Humans	Light	Materials	Animals	Forces	Plants
Big Question:	What makes me human?	Can a shadow grow?	What would an explorer wear?	Would a tiger make a good pet?	Is a push a pull?	Is a tree a plant?

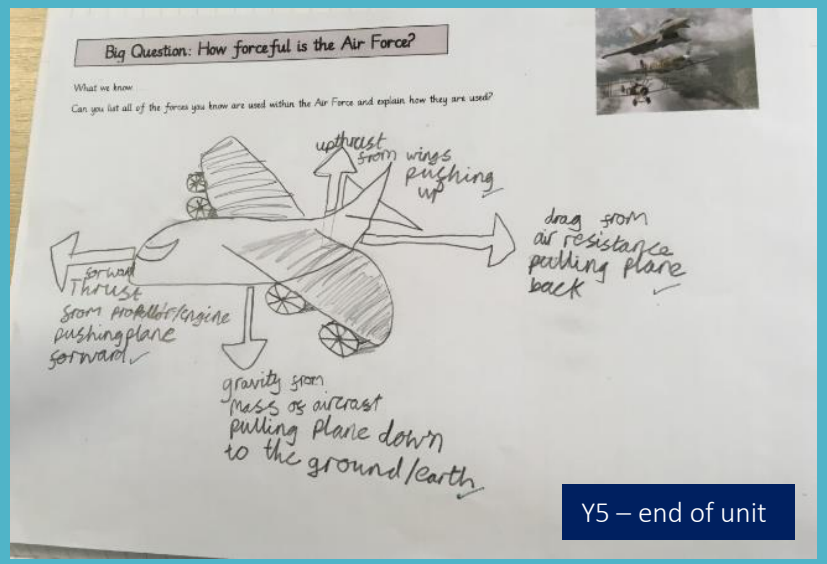
Y2 – start of unit



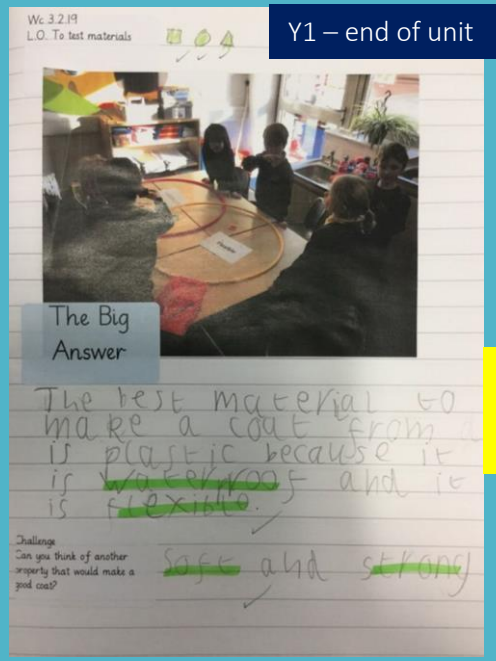
I like how we have a Big Question and then have little questions to help us answer it. **Cydney Mac, Y2**

Y4 – end of unit

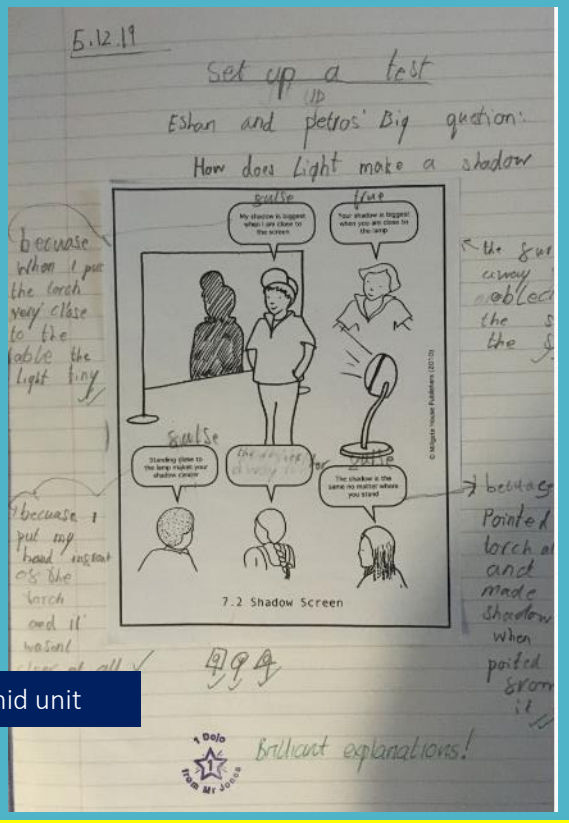




Y5 – end of unit



Y1 – end of unit



Y3- mid unit

Using Big Questions gives the children real ownership of their learning and gives them an aim to work to through the lesson or unit. **Laura Ward, Y6**

Outreach: science leaders

SL4, O1

As a Specialist Leader of Education in a National Teaching School, our Science Leader is regularly asked to support new or established Science leads in developing science in their schools. This involves visits to West Jesmond and their schools.

As part of our Teaching School remit we host the Newcastle Science Network Leaders meetings. This has extended to schools out of the Newcastle authority. Our science lead runs the sessions with Primary Science specialist, Rosemary Feasy, to share best practise, resources and the latest updates in primary science.

The meeting I had about science at West Jesmond Primary School was helpful and productive. He shared lots of useful material about how science was planned, taught and assessed.
I came away from the meeting with a clear list of actions to discuss and implement in my school as part of developing our science curriculum. In particular; reviewing science teaching across school to understand how children work scientifically across school, introducing I can statements from CIEC publication for children and teachers to assess and monitor progress and ideas for planning and teaching science linked to big questions and enquiry types.
Faye Morris, Carr Hill Primary School - Gateshead

Our meet up was really helpful, especially for me being new to science subject leadership. It helped me identify our schools needs with regard to science and offered useful suggestions on how you identified and targeted similar issues in your school setting.
Together we were able to identify and prioritise what should be implemented in my school setting. Whilst planning units for this half term, I have implemented "Big Questions" and working scientifically targets as opposed to learning intentions; we discussed that LI's often give away the knowledge that will be learned in the lesson instead of the working scientifically skill.
At the beginning of each lesson, I have adopted the technique of long term memory tasks to focus on "stickability" and committing learning to long-term memory. Next on my agenda is staff CPD, sharing the expertise of yourself and others from science network meetings. **Hannah Owens, Stobhillgate First - Morpeth**

Really useful ideas for taking back to school. Very informative meetings and welcoming. Tom has always been approachable and supportive at replying to emails with questions.
Rachel Shiel, Ravenswood Primary

Network meetings are a great way to share best practice – presented with lots of enthusiasm. Termly science challenges are now a much loved fixture. **Alex Reid Milligan, Throckley Primary.**

The meetings have had a positive impact on the teaching of science wthin our school. I have used frames within investigations and graffiti walls. **Orla Burke, St Joseph's Primary**

Thank you so much for last week and your offer of further support. We thoroughly enjoyed visiting your school and picking your brains last week. it's very obvious you know your science! I'm just organising how I envision science to happen for us next year and will definitely be in touch again.
Michelle Hindmarsh, Sugar Hill Primary - Northallerton

As the new subject leader for science I was put in touch with Tom to look at the science curriculum and resources at Yewdale to advise on next steps. Initially we looked at the structure of the curriculum as it had previously been and noted that the emphasis on investigation was not strong enough. Together we looked at some resources that Tom provided across the full school curriculum that would encourage a greater involvement with science investigation. We also discussed how some of the longer term investigations over time, particularly seasonal change in KS1 could be best managed and looked at how that could be recorded and shared with children. Tom provided some useful resources that also looked at links between statistics in maths and the science curriculum. We looked also at key resources that would be needed to enable an investigation led approach to science. **David Fasham, Yewdale Primary - Carlisle**

They enable sharing of good practice, a chance to question and support colleagues and are always full of valid ideas and resources. Invaluable! Thank you!
Theresa Simonson, St Michael's Primary

They are a valuable resource for teachers, I have used PSTT resources introduced by Tom in my school. The children have engaged well with them.
Lesley Panton, Stocksfield Avenue Primary

Outreach: student and NQT support

T1, O1, O3

As part of our Teaching School remit we run a School Direct Initial teacher Training programme. Our Science Lead delivers the science teaching and learning sessions to this cohort and three other School Direct programmes in the North East. Students on placement at our school also have the opportunity to observe the Science Leads teach the subject.

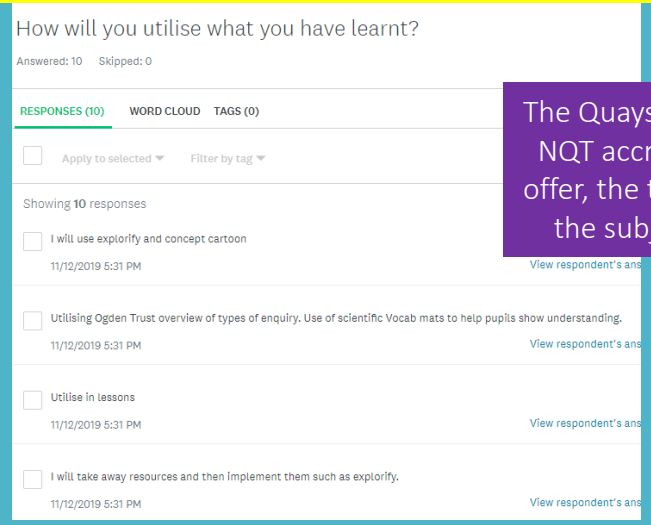
	YES	NO	PARTIALLY	TOTAL
To provide an understanding of the Science National Curriculum	96.15% 25	0.00% 0	3.85% 1	26
To gain a range of teaching and learning strategies	100.00% 26	0.00% 0	0.00% 0	26
To gain strategies to promote the use of science vocabulary	100.00% 26	0.00% 0	0.00% 0	26
How to incorporate Working Scientifically across all science lessons	100.00% 26	0.00% 0	0.00% 0	26

Trainees using ReachOut CPD

As part of our NQT CPD programme in School, our NQTs meet with subject leads to gain an over view of how we approach the subject and observe the subject leader.

As an NQT it was very beneficial to receive additional training and guidance about how we do science at WJPS. The guidance has increased my confidence in being able to teach science effectively and ensured I have a thorough understanding of all the concepts to be taught. Furthermore, it has also enabled me to plan fun and practical lessons which have ensured pupils are engaged during lessons whilst still learning scientifically. **David Mansfield, Y5**

It was really useful looking at the different resources we could use for links into Science, for example Explorify and See Through Science, as well as exploring the Science Capital approach which has benefitted my working wall, as well as encouraging good Scientific talk and language in lessons. Watching Tom teach really shows the efficacy of contextualising scientific learning and questioning.
Ben Collier, Y3



Great ideas for varied lesson types, starters and universal tasks.
James Carr, School Direct Ponteland Partnership

The activities were really useful.
Caspar – School Direct 3 Rivers

The Quayside Teaching Alliance also provides NQT accreditation. As part of the NQT CPD offer, the teachers have Science training with the subject leaders from West Jesmond.

It was a great lesson combining science and computing. It gave me an insight into how you can use computing to support the learning in science. I enjoyed the practical elements of the lesson which I will be able to use going forward. I liked the beginning of the lesson looking at 'last week, last unit and last year' which can be implemented across the curriculum. I'll certainly add that into some of my lessons.
Ryan Redford, School Direct - QTA

Outreach: CPD

SL4, O1, O3

Our science lead presented at the PSTT International Conference in Edinburgh running a very popular session on “Using technology to support teaching and learning in science.”

Our Science Lead presents sessions on the Great North Museum’s Transforming Learning in Science Through Collaboration with Museums course, leading sessions on Science mastery and West Jesmond’s experience of working with the museum. Our new Science Lead is also attending the course.

An inspirational presentation with some useful ideas to engage and enthuse. **Vicki Sharkey, Dr Tomlinson, Rothbury**

Tom is such an enthusiastic leader of Science, he never fails to inspire me to improve science learning outcomes in our school. **Judith Robertson, Knoplaw Primary**

Really inspiring to see how another school has used the museum as part of their curriculum, will definitely be stealing some of your ideas. **Vicky Carter, Moorside Primary**

Great ideas on how to incorporate science into other subjects and how to create a lot of learning from a single object. **Rob Howard, Simonside Primary**

Participating in the 'Transforming Learning in Science Through Collaboration with Museums' course at the Great North Museum has been a fantastic opportunity for CPD and the development of my own Science Leadership skills. Throughout the programme, I have been working closely with museum staff and colleagues to explore ways of improving children's scientific enquiry skills and increase Science and Cultural Capital through using the Museum's rich resource base. As part of this programme, I have trialled several activities with my class to improve their ability to ask relevant, scientific questions. I have also visited the Great North Museum on multiple occasions with my class to provide valuable learning experiences outside the classroom.
Alex Mackellar, Science Lead

Our science lead led Westgate Academy’s January Training Day on Working Scientifically and assisted teams with planning their next units.

It was great, there were some fantastic ideas which we are starting to use in year 5 this afternoon. Loved the intro to each topic and the websites are good. Please pass on our thanks.
S. Ogilvie Y5

I really valued the science CPD, especially the emphasis on 'investigation'. I think this is something that can be applied to all subject areas. For example, reading comprehension lessons should also have an element of investigation where the children investigate a text using the demonstrated reading skill. I found the range of activities fun and engaging, and enjoyed the 'pub quiz' style element to it! Low stakes competitions between tables is the way forward. It was great to see theory in action and demonstrated the need to try things out first before asking kids to do them. Thanks!
B. Davies Y6

I found the training beneficial and practical. I liked how you modelled the skill of 'observing closely' through the cookie exercise, thought it was very engaging and could start to see how this can work in my year group. Also found it helpful how you shared examples of how specific features are taught within your own class and school, such as 'big question' and bright idea. **S.Uddin Y4**

Feedback to governors

SL1, SL2, SL5

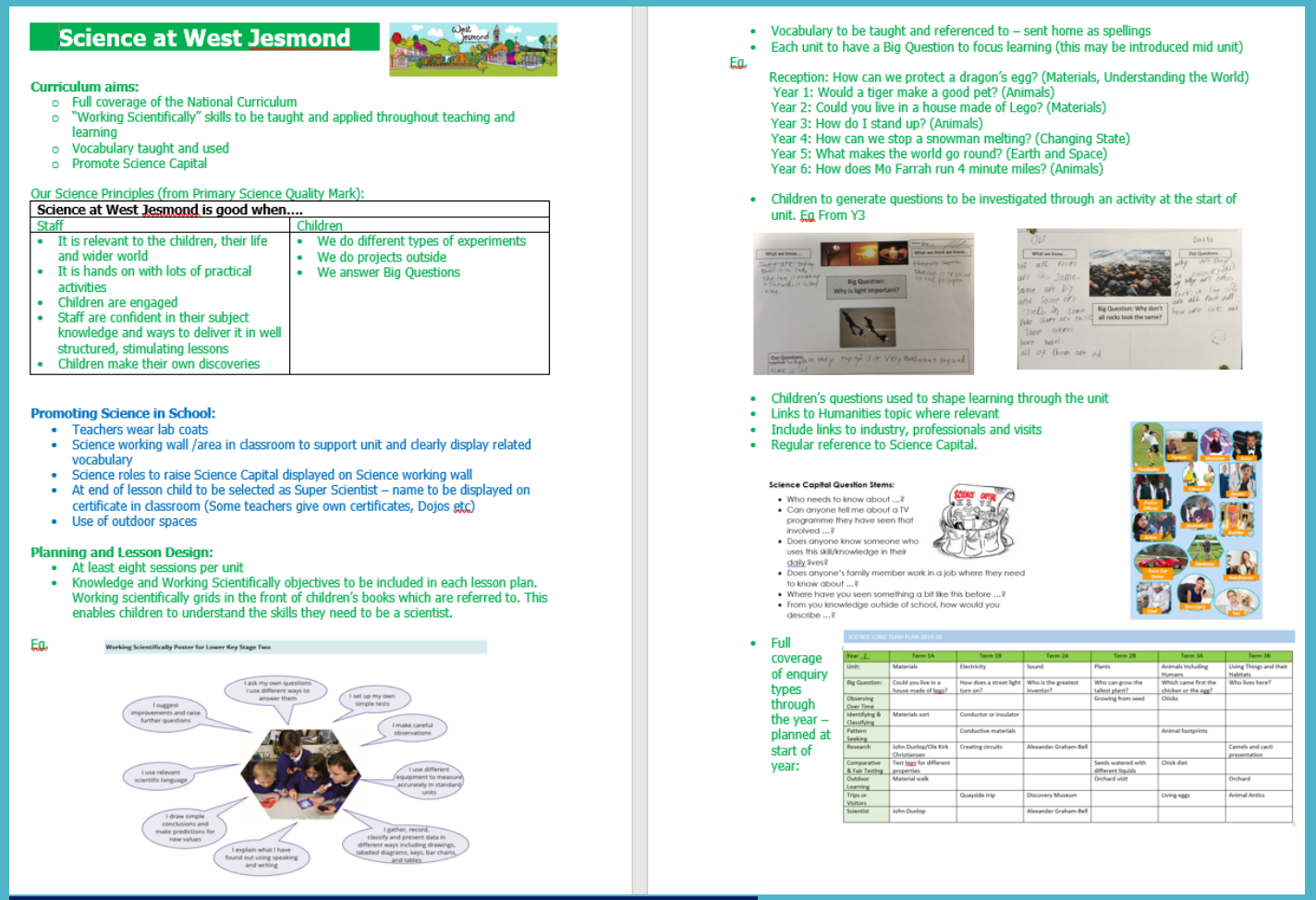
As part of our Curriculum Governors Committee, the Science Leads presented how science is taught throughout the school and the research behind this. The Governors also had the opportunity to look at pupils' work and ask questions. They have requested that this is replicated at a Full Governing Body meeting later in the year.

The presentation at Curriculum Committee was inspirational although I felt a little sad that my children (now in their 20s) hadn't benefitted from such amazing provision! Science is clearly a well thought through and well embedded part of a child's experience at West Jesmond. It was obvious from the presentation that the content is appropriate for the different year groups and exciting. High quality science learning and vocabulary is being delivered through interesting projects with thought-provoking questioning and discussion. I was also pleased to see Alex starting to take on the leadership of science alongside Tom.

Jane Edminson, Chair of Governors

I'm proud of the depth of science we offer at West Jesmond. One of the best things I heard was how our pupils in Y7 at Jesmond Park are seen to have great scientific knowledge and understanding. This is testament to what and how they are taught here.

Laura Robb, Vice Chair of Governors



Science at West Jesmond

Curriculum aims:

- Full coverage of the National Curriculum
- "Working Scientifically" skills to be taught and applied throughout teaching and learning
- Vocabulary taught and used
- Promote Science Capital

Our Science Principles (from Primary Science Quality Mark):

Science at West Jesmond is good when....	
Staff	Children
• It is relevant to the children, their life and wider world • It is hands on with lots of practical activities • Children are engaged • Staff are confident in their subject knowledge and ways to deliver it in well structured, stimulating lessons • Children make their own discoveries	• We do different types of experiments • We do projects outside • We answer Big Questions

Promoting Science in School:

- Teachers wear lab coats
- Science working wall /area in classroom to support unit and clearly display related vocabulary
- Science roles to raise Science Capital displayed on Science working wall
- At end of lesson child to be selected as Super Scientist – name to be displayed on certificate in classroom (Some teachers give own certificates, Dojos etc)
- Use of outdoor spaces

Planning and Lesson Design:

- At least eight sessions per unit
- Knowledge and Working Scientifically objectives to be included in each lesson plan. Working scientifically grids in the front of children's books which are referred to. This enables children to understand the skills they need to be a scientist.

Eg.

Working Scientifically Poster for Lower Key Stage Two

- Vocabulary to be taught and referenced to – sent home as spellings
- Each unit to have a Big Question to focus learning (this may be introduced mid unit)

Eg.

Reception: How can we protect a dragon's egg? (Materials, Understanding the World)
Year 1: Would a tiger make a good pet? (Animals)
Year 2: Could you live in a house made of Lego? (Materials)
Year 3: How do I stand up? (Animals)
Year 4: How can we stop a snowman melting? (Changing State)
Year 5: What makes the world go round? (Earth and Space)
Year 6: How does Mo Farrah run 4 minute miles? (Animals)

- Children to generate questions to be investigated through an activity at the start of unit. Eg From Y3

- Children's questions used to shape learning through the unit
- Links to Humanities topic where relevant
- Include links to industry, professionals and visits
- Regular reference to Science Capital.

Science Capital Question Stems:

- Who needs to know about ...?
- Can anyone tell me about a TV programme they have seen that involved ...?
- Does anyone know someone who uses this skill/knowledge in their daily lives?
- Does anyone's family member work in a job where they need to know about ...?
- Where have you seen something a bit like this before ...?
- From you knowledge outside of school, how would you describe ...?

- Full coverage of enquiry types through the year – planned at start of year:

SCIENCE LONG TERM PLAN 2019-20

Year 3	Term 1A	Term 1B	Term 2A	Term 2B	Term 3A	Term 3B
Unit:	Materials	Electricity	Sound	Plants	Animals including Humans	Living Things and their Habitats
Big Question:	Could you live in a house made of lego?	How does a street light turn on?	Who is the greatest inventor?	Who can grow the tallest plant?	Which came first the chicken or the egg?	Who lives here?
Observing Over Time				Growing from seed	Chicks	
Identifying & Classifying	Materials sort	Conductor or Insulator				
Pattern Seeking		Conductive materials			Animal footprints	
Research	John Dunlop/Ole Kirk Christiansen	Creating circuits	Alexander Graham-Bell			Camels and cacti presentation
Comparative & Fair Testing	Test lego for different properties			Seeds watered with different liquids	Chick diet	
Outdoor Learning	Material walk			Orchard visit		Orchard
Trips or Visitors		Quayside trip	Discovery Museum		Living eggs	Animal Antics
Scientist	John Dunlop		Alexander Graham-Bell			

Example of pages of the document presented to Governors

Pupil voice

L1, T2

I like working outside and finding out new things. **Cydney-Mac, Y2**

I like using the badges and bring the Recorder. In science I learn new things. **Betsy, Y2**

It is fun doing experiments. In STEM Week I enjoyed designing the bridges, having time to talk about how we could improve it then being able to make it again. I also loved learning about Valentina Tereshkova the first woman to fly in space. It has made me realise I could do that. **Sachi, Y3**

It's really good learning about science. I loved going to the Centre for Life. **Omer, Y3**

I like doing all the experiments. **Lara, Y3**

The best thing about science at West Jesmond is the fun experiments. I liked investigating plants outside. **Maddison, Y4**

I love science because it's really interesting. The teachers make fun experiments for the class to do. **Thomas, Y4**

This is what I like about science; experiments, understanding and the way it works, finding out the answers to see if I'm right or wrong, I learn from my mistakes, Big Questions, Big Answers, recording, diagrmas, comments, challenges and picture questions! **Olly, Y4**

The best thing is the experiments and they very useful things that you use in real life. **Sarmed, Y5**

I love science, I have been the Ambassador two years in a row. I like experiments because they vary a lot within lessons. **Jessica, Y5**

I love everything about our lessons because science is my favourite subject. **Jacob, Y5**

I really like the way classification is taught in biology. **Cillian, Y6**

The best thing about science at West Jesmond is that every topic is clearly explained and we also do (or make) fun projects! The best thing was dissecting and pig''s eye and making a periscope. **Priyanka, Y6**

My favourite thing we have done this year is our experiments with circuits and programming a robot. **Eli, Y6**

Feedback from Staff

T1

There is a real passion for promoting science across the school and there is a real sense of excitement from the children.
Lauren Stenhouse, Rec

There is a genuine enthusiasm from the children as part of the ethos developed over the years. We keep hearing children saying" I want to be a scientist." **Dianne Sanderson - Reception**

Science is given high priority in our school, compared to when I talk to my peers in other schools, which makes me proud to work at West Jesmond. We give the children regular opportunities to explore science in different ways, and provide many enhancements such as trips and visitors. Leadership are passionate about science within school and help to facilitate opportunities for children to encounter real scientists. **Glen Hopkins, Y2**

Tom has frequently shared ideas in which we can incorporate the different types of investigations into fulfilling the Y5 National Curriculum, such as pattern seeking in our recent Animals (Including Humans). We feel that we are able to share our own ideas and Tom helps refine them in conjunction with us.
Gemma Jordan, Y5

I feel Science leadership and teaching at West Jesmond is highly engaging and helps to inspire young children to take interest in STEM subjects. Leadership are highly knowledgeable and passionate about Science and STEM subjects and this is mirrored in teaching across the school. Lessons are fun, engaging and support children to use scientific skills.
Clare Byatt, Y1

Science teaching and leadership in school is dynamic and the feedback we receive from book looks helps us to further improve and move forwards in the right direction.
Karl McGrath, Y6

Science is rigorously monitored, and good constructive, detailed feedback is provided. There appears to be a very high standard across the school which is consistent in every year group. There are good opportunities to share work and look at what is happening in other year groups. **Liz Thomspon ,Rec**

Science teaching at West Jesmond has become more child focused, making it relevant to the child through exploration and discovery. Encouraging the children to ask the questions that they want answered and enabling them to discover how and why brings Science to life.
Cath Laidler, Y3

The leadership of science drives innovative learning experiences in school and has helped increase the profile of the subject in school, encouraging a love for Science from the children. The children are encouraged to shape their own learning through use of Big Questions and are given opportunities to plan their own investigations.
Mark Rimmer Y5

Mr Jones came to this school with a plan to 'revolutionise science education' at West Jesmond and my goodness has he done that. In our work as a National Teaching School he has taken his transformative approach and created flourishing science teaching in many schools in the North East and Cumbria, alongside international outreach work with delegations of teachers from China, Iraq and the Netherlands. Over my 10 years of leadership of the school I think I am most proud of the development of science as a subject and how empowered staff in our school and elsewhere have become to fully engage with whole school STEM weeks, create pupil science ambassadors, explore a wide range of science based careers and develop an outlook where all children love science and see it passionately as an integral part of their learning and knowledge.
Gary Wallis-Clarke, Executive Head Teacher