



Amberley Primary School

PSQM Portfolio

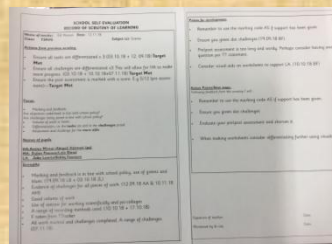




Science is celebrated around our school through high quality displays in classrooms and corridors which show our principles.

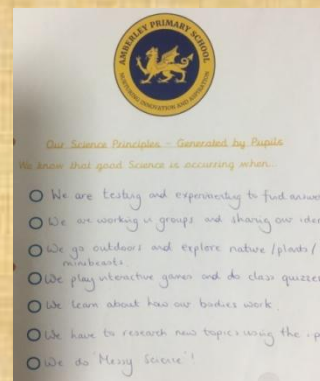
SL1- There is a clear vision for the teaching and learning of science

Pupils and staff were asked what would make science even better. This was used to create our principles.



We held a competition to design a new science principles poster. They are now displayed in all classrooms around school.

Regular book looks and feedback improve teaching and learning.



Staff wanted:

- Children to work more independently;
- To have more ideas and resources
- To use the outdoor spaces more when teaching science.

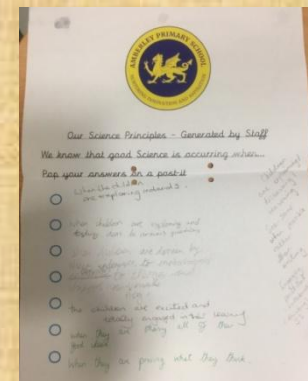


The winners were announced in our STEM celebration assembly.



Pupils wanted:

- Exciting experiments;
- To ask and answer own scientific questions;
- More trips and visitors.





EYFS germs investigation using glitter.



Y3 making vehicles with batteries at The Discovery Museum.



EYFS toasting marshmallows on the fire pit.



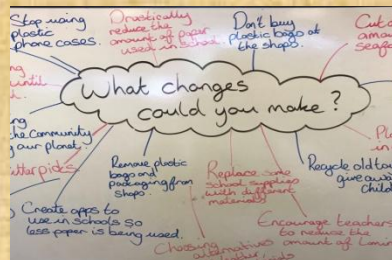
Y1 collaborating to find how to melt ice quickly.



Y5 experimenting sound.



Y6 thinking deeper about sustainability after taking part in a 'Live' science lesson



SL1- There is a clear vision for the teaching and learning of science. Our principles in action.



Y2 looking at habitats in the woods.



Y4 visit from an Antarctic scientist. This was a cross curricular activity based on their topic lesson



Enthusiasm by sharing science homework.



Y6 have the confidence to lead learning in science with Y2 children.



It was great fun to make volcanoes together and I liked being able to see what my son has been learning. **Parent**



I loved being able to share my job with my daughter and her class. I am flying the flag for female scientists. **Parent.**

There is a growing excitement around the science curriculum that teachers and pupils have created together.

Our science school governor has joined us on learning walks and book looks.

Naomi loved science today and was telling me all about acid and alkaline testing! **KS1 parent.**



Parents sharing their science jobs in STEM week.

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



Our science leads love to share good practice with teachers of the future.



I have left your school feeling inspired, excited and full of amazing ideas.

SCITT trainee

Whole school sharing work assemblies



Y1 boy: Mrs Nichols look at my work. I did my assessment and I know all the animal groups now.

A Y1 boy told me this because he knew I was in charge of science.





Staff are invested in enriching pupils experiences and improving their learning.



After taking part in the PSEC we are eager to use WOW science across school next year.



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



Y3 making bath bombs.

Y2 making slime.



After CPD, several members of staff have organised science clubs. Our Eco-Club is well established, the KS1 Science club is fun and engaging and the Garden Golden Time Group work outside in the school garden.

When I close my hand it becomes a solid and when I opened my hands it's a liquid.

SLT provided funding so that year groups could have outside providers support science skills in school.

CPD has been brilliant and I have loved doing the things that I have been shown.
Y5 teacher

Y1 healthy eating club.



Y4/5 STEM club exploring the habitats in our school garden



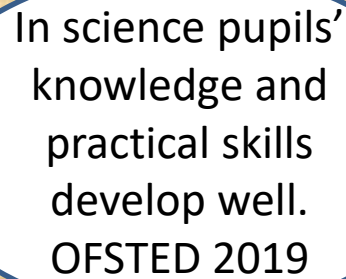
Y3 looking at habitats in the country park.



I love working in a small group.

Y6 working in the Invention Shed.





Science Data 2018-19					
Science Spring 2018	% working below 20%	% working 67 and above 80%	% working above 80% 90%	% working at or above 90%	Missing Data
Y1	1.3%	97.7%	94.4%	95.6%	5.3% Arden C, Anna S, George L
Y2	0.3%	91.4%	40.0	18.0	NA
Y3	14.3%	80.7%	90.4%	19.3%	NA
Y4	0.3%	91.4%	40.0	9.3	NA
Y5	16.4%	84.1%	21.0	8.3%	Craig B
Y6	14.1%	80%	54.4%	9.4%	NA

 AMBERLEY PRIMARY SCHOOL		School Development Plan 2018-2019	
ACTION PLAN for: Curriculum, Assessment, Teaching and Learning			
Curriculum including Science	AI - GC	N/A	Action plan produced for T&L assessment
To ensure pupils have access to a broad and balanced coverage of objectives across each Key Stage.	Art, Num, Sci, Geo, IT	Staff cover	Art plan English with science Mathematics with science Science and English Science and English Science and English
		N/A	Check timetables and ensure all objectives are covered
		Termly curriculum review	Check timetables and ensure all objectives are covered
		N/A	Science lessons have been every day
		N/A	Reduced to be put in place from 2019
		N/A	Check subject objectives against all objectives
	N/A	Maintaining of extra-curricular activities	Check timetables and ensure all objectives are covered
	Three -	ESOL support for pupils	Check timetables and ensure all objectives are covered
	T&L and group working for 2019	Learning support with characteristics	Impact on learning and progress
	Subject leaders	End of term assessments and accompanying secondary into curriculum. (How they link into the British values.	Feedback to staff Feedback to staff Progress to staff Progress to staff

What Science looks like at Amberley
At Amberley working scientifically is at the core of teaching and learning and we embrace it as an opportunity to engage pupils in practical, experimental learning. Science is used to enhance creativity in our pupils and to help develop teamwork and leadership skills. We are proud of our 'Primary Science Quality Mark' Silver Award which recognises Science teaching and learning at Amberley.

We like Science across our grades where possible. We have a "Space Day" and "Antarctica Day." Such activities have allowed children to talk to real scientists who use e-mails and through our school Twitter. During Tim Deader's space mission, Amberley used our school Twitter to talk back to him. We have a "Space Day" where we dress as astronauts and talk about some of the things from space. Pupils have also spoken via webcam to the BBC scientist Helen Cornell. They interviewed her while she was living upon an iceberg.

Children need to contribute to SMSC by highlighting to our pupils their 'global citizen' rights and responsibilities as good stewards of our planet Earth. We have an "Eco-Warriors" across the school who must regularly discuss means to protect the environment and the planet. We have a "Green Flag Eco School Awards" which we have created Amberley to gain 3 Green Flag Eco School Awards. We are also the proud owners of our own wind turbine and solar panels.

Our commitment to promote Science education is not limited to our students and universities into school to work with us on various projects across the weeks in well as holding career talks with the children. By doing this we are able to give the children an insight into the world of work and the world of Science in the field.

At Amberley we believe that visits play a vital role in exciting children about Science within the wider curriculum. We offer a range of visits to our Country Park and Weoldehouse Country Park. We also provide further opportunities for children who we have identified as greater depth with a visit to New York Science Centre and **progress**

Tracking attainment and progress

At Amberley we use Target Tracker to assess attainment and progress. Staff use post assessments and summative assessments to track the children's progress and to ensure that the children are achieving the expected standards. The next step is placed at the end of the summer term. The data analysis is supported by the scrutiny of books and through learning walks. Our Science leads also talk to pupils about their progress and the progress they have made through the year. We hope they think we could improve.

A graphic featuring a stylized atomic model on the left with a central nucleus and orbiting electrons. To the right, the text "Science Principles at Amberley" is displayed in a serif font, enclosed within a dashed rectangular border. Small geometric shapes (circles, squares, triangles) are scattered around the text and the atomic model.

Our Science Principles -- Generated by Pupils

We know that good Science is occurring when...

- We have the chance to carry out scientific experiments and make statistical analysis.
- We work as part of a team and share scientific ideas with each other.
- We like to link our experiments to a real life scenario.
- We like to ask our own scientific questions and answer them ourselves.
- We enjoy completing STEM activities.
- When we work and explore outside the classroom and go on educational visits.
- When we use the latest and scientific equipment to answer questions and carry out our own research.
- We can present our scientific knowledge in different ways.

These are your Science Principles



We ensure that the actions in the SDP then transfers through into lessons through learning walks and book looks.



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

We received CPD at our local university about planning for the inclusion of scientific enquiry. We then provided CPD to staff who now include this in lessons.

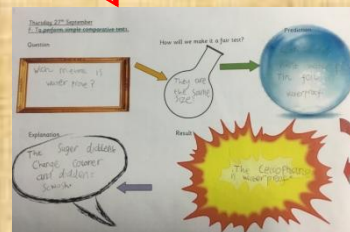
An increased budget was made available to provide us with weekly time out of the classroom to monitor science and to attend and deliver CPD.



Y1 researching



Y2 fair testing



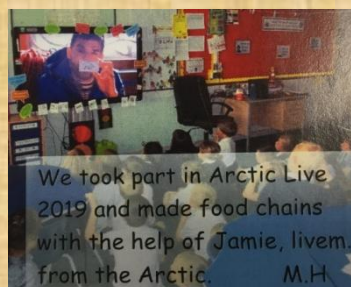
We received CPD at a science network meeting where we discussed the role of taking part in 'live' science lessons.



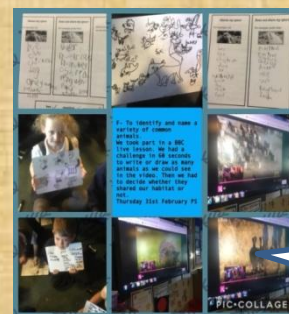
Y5/6 school allotment project ran by a grandparent.



Y3 sorting



Y2 – exploring food chains in the Arctic.



Y1 – Identifying and naming a variety of common animals.

I was enthused by the ideas we discussed and agree that we need give children more opportunities to be involved with 'real life' science investigations.

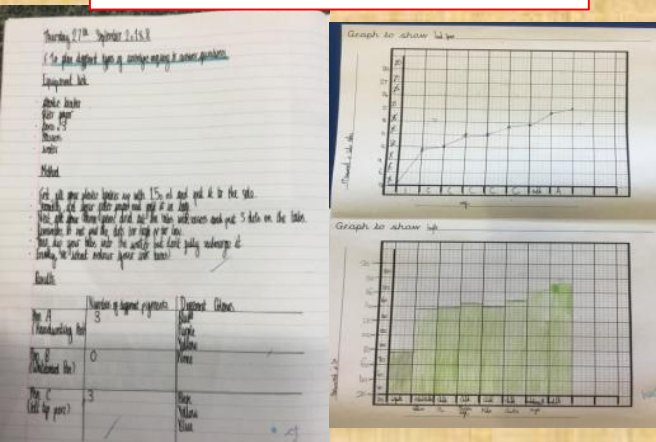
M Nichols – Science Lead.



SLT, Science leads and the science governor have taken part in lesson observations and book looks.

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

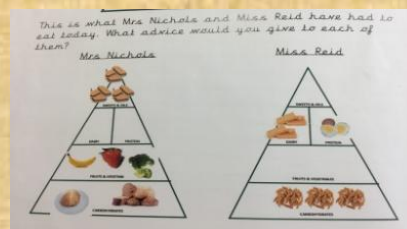
Independent recording



Our question: How far does a toy car travel on different surfaces?

Question? How far does a toy car travel on different surfaces?

Ask own questions



Predicting



Most popular class prediction: Most of the class thought that the coca cola would melt the ice the quickest. Some children thought that the fizz and bubbles would make the ice disappear.

Advice for Mrs Nichols: You should eat less sweets, you need to eat fruit and veg, you need to eat more carbohydrates.
Advice for Miss Reid: You should eat less chocolate, you should eat less fatty food, you need to eat 5 portions of fruit and veg a day, you need to have a bit of exercise.

Deeper thinking

Feedback from book looks and observations are fed back to staff.

Pupil voice

A pupil survey was taken at the start of the process and again towards the end. The response show that science is popular subject. Children say that they enjoy their lessons because they are fun and have hands on activities.

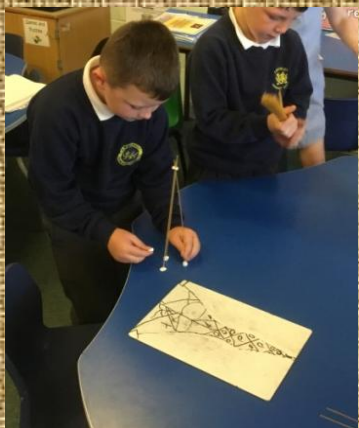


Children talk enthusiastically about science lessons and are keen to share their ideas.

Science Lead

L1- There is a shared understanding of the purpose and process of science enquiry.

Y2/4 testing out ideas.



Y1 observing



Y3 sorting and classifying creatures in the local nature reserve.



Y6 testing out ideas.



EYFS exploring animals at the farm

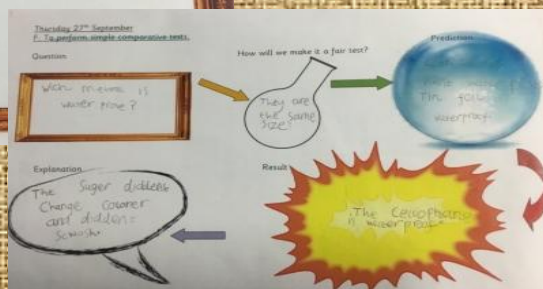
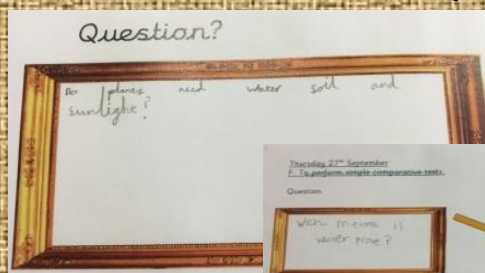
Y 5 researching hedgehog houses in the school garden



Children developing their own enquiry questions, leading to greater independence

L2- There is a shared understanding of the purposes of science assessment and current best practice.

Science is assessed and reported to parents in a separate section of the annual school report



SCIENCE: Alexia is a fabulous scientist and it has been a pleasure having her in my class. She has a good understanding of the new concepts we have covered and is always keen and interested in investigations. This year Alexia has been able to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. She demonstrates an increasing knowledge of aspects of life processes and living things drawn from the Key Stage 2 programme of study. Abbie can describe the main functions of some organs of the human body, such as the function and purpose of the heart and lungs and can explain how these functions are essential to the human body. She also recognises that there is a great variety of living things and understands the importance of sorting and classification.

Achievement	A		B	C
		✓		
Effort	Excellent	Good	Varies	Needs to improve
	✓			

Science is marked every lesson and recorded in a form to feedback to students in to consequent lesson. All misconceptions are addressed.

Whole Class Feedback sheet (with class) Date: 7.11.18 Lesson: Science
Work to Praise and Share

Good explanation, introduction of presentation - table in pencil, good explanation - 100% - 100%

Presentation (Praise/ Improve)	Basic Skills Errors
Capital letters on end of sentences - 100% Handwriting - 100% Missing pages - 100% Write from margin 100% Underline on line Underline sub-titles - 100% Capital letters - 100%	Question mark - 100% 100% 100%
Spelling Errors	Misconceptions/ Need further support
1. cloud - liquid 100% color - 100% noting - 100% whach - 100% bottom - 100% make - 100% wick - 100%	
Next Lesson (s) Notes	
• Write in sentences. Recap noting back - why was orange juice water write down	

05.11.18

Aiming High in Science

Year 2

Use of everyday materials

Child	Success Criteria	Teacher
1	I can identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.	100%
2	I can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	100%
3		

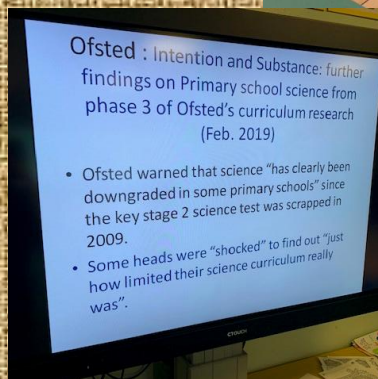
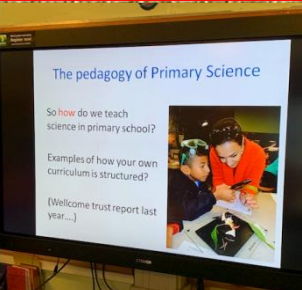
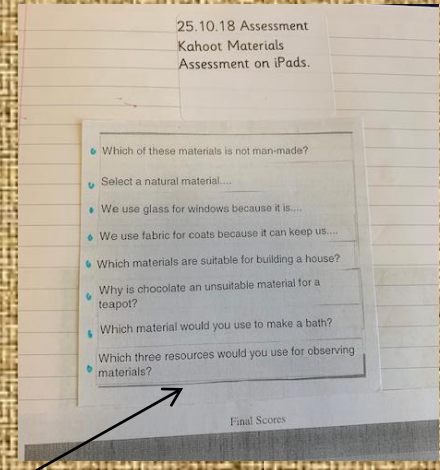
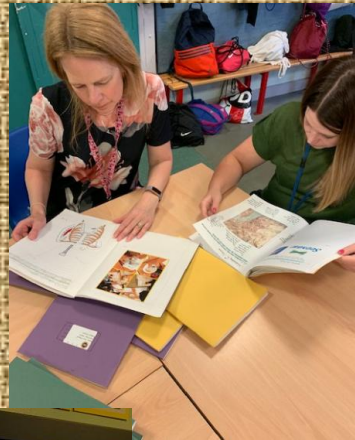
Science is assessed at the end of each unit using marking ladders.



A book sharing exercise during a staff meeting has given staff a clearer idea of the different ways to assess science.

L2- There is a shared understanding of the purposes of science assessment and current best practice.

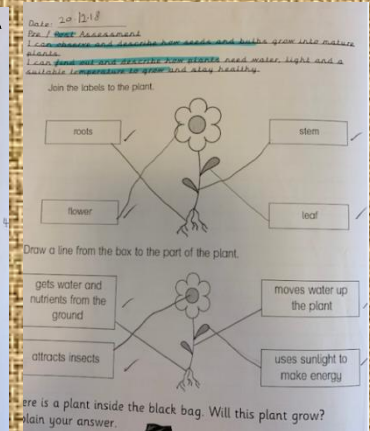
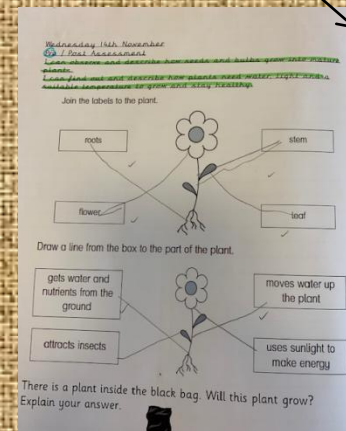
Notes and emails sent in regards to sharing best practise from CPD sessions attended.



Children's knowledge is assessed at the beginning of new topics and assessed post topic to measure any progress made.

Science teachers record attainment and progress very clearly using our Target Tracker system.

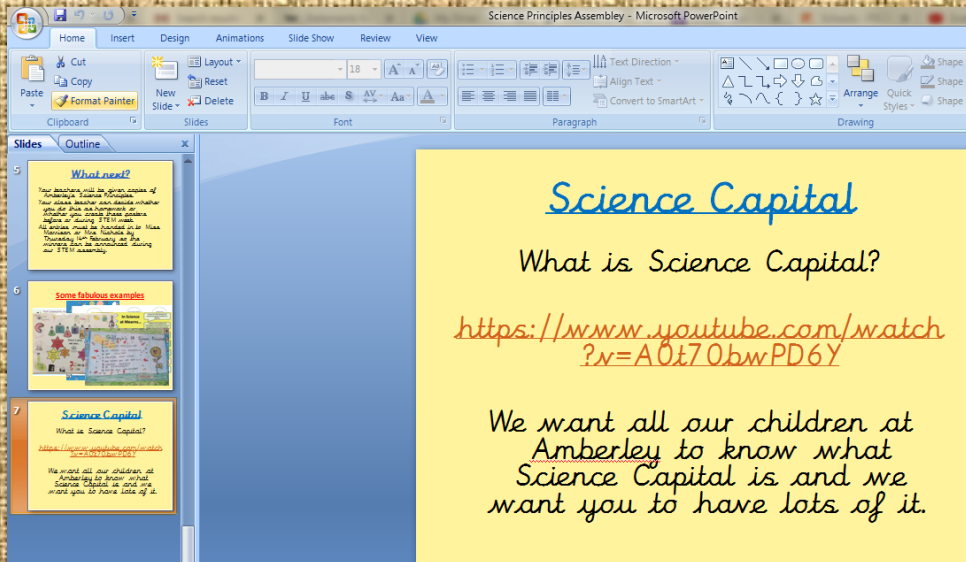
Name	Assessment	Target Tracker					
		30+	31	32	33	34	35
Akita Aliman	3e+			● Y13 Sum2	●		
Viv Boaden	3a			● Y13 Su...	●		
Sadie Booman	3a		Y13 Spr2	● Y13 Sum2	●		
Louis Buckle	3a		Y13 Spr2	● Y13 Sum2	●		
Jessica Cairns	3a		Y13 Spr2	● Y13 Sum2	●		
Uly Cameron	3e+			● Y13 Sum2	●		
Chloe Campbell	3e+			● Y13 Sum2	●		
Daniel Canuthers	3a+					● Y13 Su...	
Joe Chubb	3a		Y13 Spr2	● Y13 Su...	●		



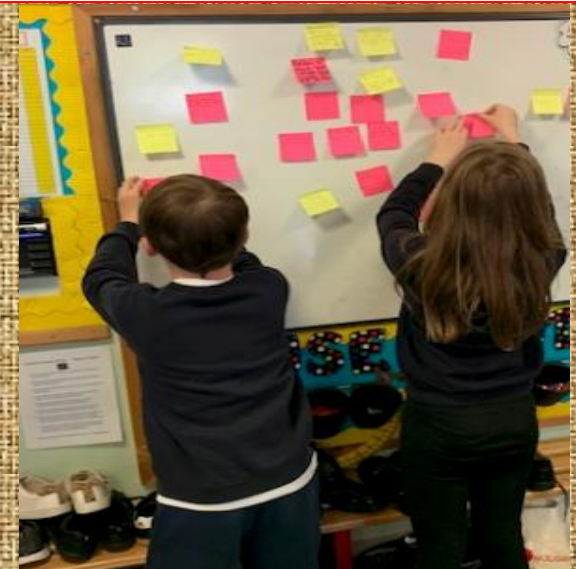


L3- There is a commitment to developing all children's science capital.

The concept of Science Capital has been shared with all year groups, governors and teachers in the whole school assembly at the beginning of Science week.



Children displaying examples of how they have Science Capital and their understanding of what it is. (Year 5)



We created a PowerPoint as subject leaders to introduce the children to the concept of Science capital and all year groups from Year 2 to Year 6 show this during their Science lesson. This video then created discussion amongst the children about their own Science Capital.

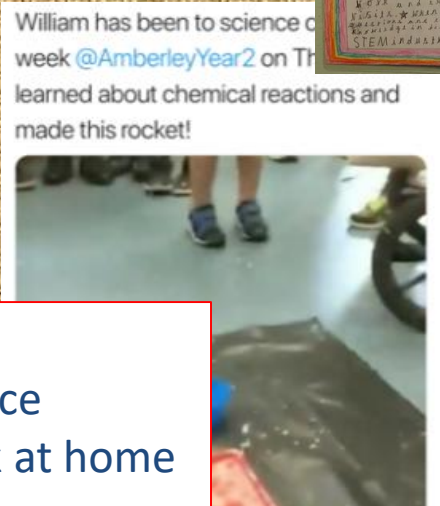
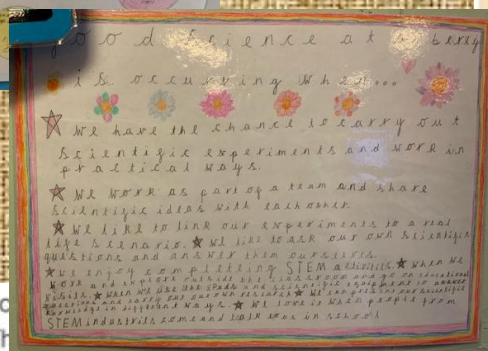
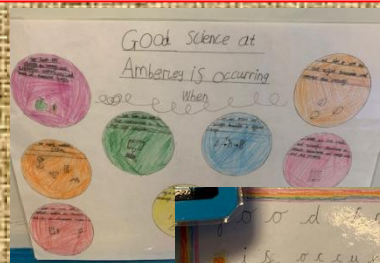


A whole school science competition was introduced in assembly and the children had to design posters that would display our Science Principles around school.

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

What next?

Your teachers will be given copies of Amberley's Science Principles.
Your class teacher can decide whether you do this as homework or whether you create these posters before or during STEM week.
All entries must be handed in to Miss Morrison or Mrs. Nichols by Thursday 14th February so the winners can be announced during our STEM assembly.



More children have participated in Science activities/homework at home with parents.

Celebrating achievements in Science during a 'Star Learners' assembly. This has increased the profile of Science across school.



Year 6 children working alongside a biomedical scientist.

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

This Year in school we celebrated a themed day: Outdoor Classroom Day.

A careers morning was held during Amberley's annual STEM week. A range of careers from this industry held 20 minute work shops for the children to engage in.



Year 2 children enjoying a visit from an Electrical engineers.



Year 3 children enjoying a dentist visit.



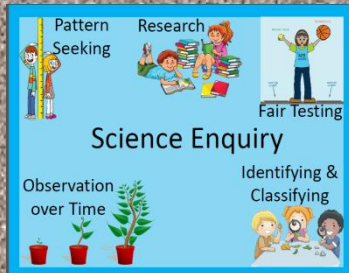
Children in Year 6 were given the opportunity to learn about great female scientists. They created videos to share in assembly.



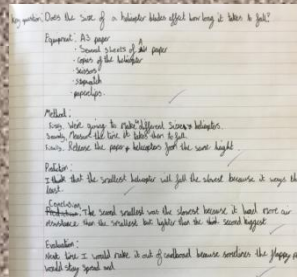


SL attended CPD at a local university about developing scientific thinking. This was then fed back to staff and we discussed how to support pupils to become more independent thinkers. We gave staff posters to help children improve their scientific vocab.

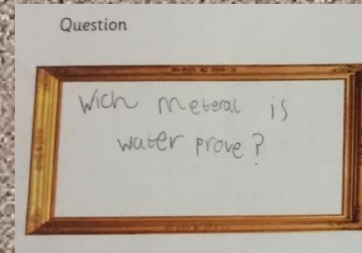
T1- There is engagement with professional development to improve science teaching and learning.



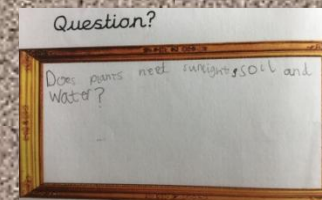
Y6 children made decisions about how to record their findings



Y3 I wonder questions.

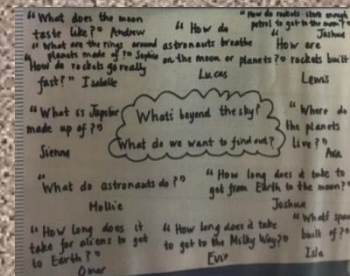


Y2 asked their own questions that they wanted to investigate about materials and plants.



Y1 asking questions that they want to find out about their space

We like using talk partners to come up with questions and think about our work.
Y1 children





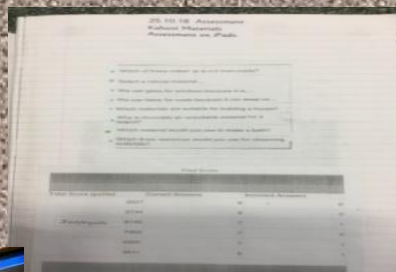
After attending CPD SL share ideas with staff who then use the ideas within their science lessons. Staff use many strategies to hook the children and find different ways of recording.

Staff use a range of apps on iPads for recording work and for assessment purposes.



Y2 children completed a materials quiz on Kahoot. This was used as an end of unit assessment.

Y1 using Popplet to input information about rock pool animals



EYFS using a new collection of books to find out about animals for their pets topic.

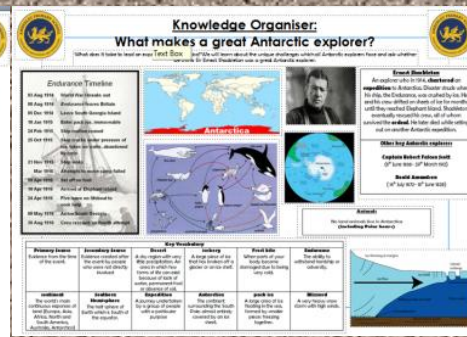
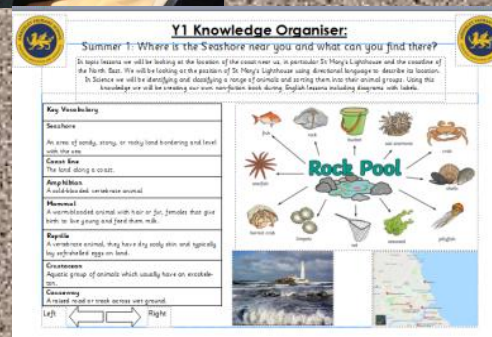


T2- There is a range of effective strategies for teaching and learning science which challenge and support the learning needs of all children.



Y3 children identifying plants in the school garden

Teachers now have the confidence to plan outdoor learning activities.



Staff in KS1 use the yakit kids app to bring scientists alive in the classroom.



Our knowledge organisers link science to our topics. Staff include key vocabulary and information for the children to take home and discuss with their parents.



SL are given a budget to spend on resources which teachers use regularly. The children are very confident in using them.

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



Y2 using a digital microscope



Y5 using pulleys for their work on forces.



Y5 using iPads to make imovies about animals for their Antarctic topic.



Y4 Children using magnifying glasses, pipettes and petri dishes.



Y2 made minibeast hotels and placed them in our school garden.

Y1 using magnifying glasses to look at parts of a plant



Y4 using log boxes to measure sound.

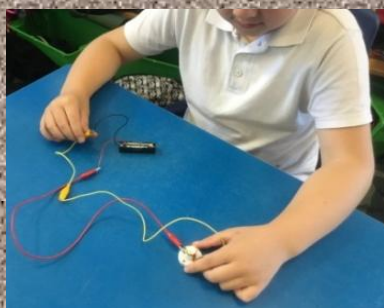




SL are given a budget to spend on resources which teachers use regularly. The children are very confident in using them.

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

Y4 making electrical circuits to make bulbs light up.



Y3 children using ramps for their forces investigation

Y3 using skeletons to learn about bones.



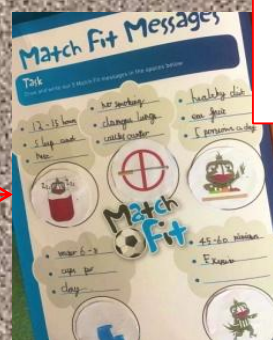
Our school is committed to promoting healthy lifestyles.



We have gym equipment on our playgrounds to promote fitness



All children complete the daily mile challenge everyday



Newcastle United Foundation work with Y5 and 6 to promote healthy lifestyle choices.



Our children love working in the invention shed to enhance their science work



A topic web handed out every term to parents and children, displaying information about the curriculum covered. Science planning has cross curricular links with topics.

WO1- There are appropriate links between science and other learning.

The science medium term plan, displaying all science lessons covered for that half term with clear learning objectives.

Amberley Primary School Cross Curricular Planning Web Year 6 Issues 1-2019

English cross-curricular links

- Identifying the audience for and purpose of the writing, selecting the appropriate form and using other media writing as models for their own
- Investigating, describing, explaining and summarising and interpreting data to communicate and defend the action

RE/PSHE cross-curricular links

- Recognising issues of intolerance and discrimination, such as racism, economic well-being, for example attitudes to wealth and poverty, skills for living and working in a diverse society, the ethics of war and peace, valuing the natural, and the care of nature

IT & Computing cross-curricular links

- Select, use and combine a variety of software (including internet devices) and a range of digital devices to design and create a range of programs, systems and content that accomplish given goals

Art & DT cross-curricular links

- To improve the quality of art and design work, including drawing, painting and sculpture with a range of materials (for example, pencil, charcoal, paint, clay)
- About great artists, architects and designers in history

Geography cross-curricular links

- Identify the position and significance of latitude, longitude, Equator, Northern hemisphere, Southern hemisphere, the Tropics of Cancer and Capricorn, Arctic and Antarctic, Circle
- Describe and understand key aspects of physical geography, including climate, rivers, oceans and weather, hills, mountains, canals and earthquakes, and the water cycle
- Understand geographical similarities and differences through the use of human and physical geography of a region of the UK, a region in a European country, and a region within North and South America

How we develop SMSC

Opportunities to explore values and beliefs and how they affect people's lives
Developing an ability to question accuracy of information
Developing awareness of local, national and world issues (Weather and current natural disasters)

Discrete Subjects

- French: Middle
- RE
- Science: Staying Alive
- RE

Extreme Earth- Why is the world angry?

Music cross-curricular links

Identify and understand music in a range of contexts, including the historical and cultural context of music

Amberley Primary School Medium Term Topic Subject Planning Grid				
Year Grp	Teacher initials	Term	Subject	Time Allocation
6	L.M/L.Mo	Summer 1	Science-Light	2 hours
Science: Light – 'Crime Lab Investigation'				
Week	NC Links/ Focus	Teaching/Pupil's Learning Activities	Differentiation and deployment of support	Plenary
1	Knowledge and Understanding - Recognises that light appears to travel in straight lines - Uses the idea that light travels in straight lines to explain that shadows are cast behind objects that are not transparent. They go out or reflect light onto the wall - Explains that we see things because light travels from light sources to surfaces or from light sources to objects and then to our eyes - Uses the idea that light travels in straight lines to explain why shadows from the same object are the same shape as the object that cast them Working Scientifically - Planning different types of scientific enquiries to answer questions, including comparing and controlling variables where necessary - Making measurements, using a range of appropriate equipment, with increasing accuracy and precision, including recording	Light Specialists Required <i>Whole Class: Have the room as dark as you can make it, with strategically placed torches on shelves and desks, all pointing towards a 'briefcase'. As chn come in hurry them to sit down and explain that they need to go through some details of a crime with them that the 'UK Crime Lab' are hoping they are going to be able to help solve. Explain that the Crime Lab has sent you over the crime report for the theft of a laptop at West Hollow Secondary School. Outline what has happened (see case file resource) and explain that the Crime Lab is looking for a team of 'lgs' experts to work with them on solving the crime. Explain that they will give chn the crime lab reports in due course, but that in order to work on the team all chn need to pass a series of induction challenges in ggs. Explain that chn will need to discuss the challenge questions in their ggs and write out specific enquiry questions for what they need to investigate (remind them of their Y5 work on developing effective enquiry questions). Explain that they will need to use the equipment given to demonstrate or investigate the challenges before coming to any conclusions. Clarify understanding of the difference between 'demonstrating' and 'investigating'.</i> <i>Activities: Have the Crime Lab challenges (see resource) set up around the room and get chn to complete them independently in mixed ability ggs (about 12mins per challenge). Use questions to support less able and encourage more able chn to lead the exploration of the 'higher level of expertise' challenges. Use this as an opportunity to establish current knowledge; what has been retained from studying light in Y3 and any misconceptions. The challenges are also designed to help establish chn's approach and ability for</i>	chn to work in small mixed ability groups	Work through each challenge, establishing the core knowledge and ironing out any misconceptions (e.g. that light travels from our eyes, that shiny things emit light, and that a shadow is a form of reflection). Highlight any approaches and discussions that you encountered which showed a high level of working scientifically and explain that this is going to be essential throughout the investigation as the evidence they present needs to stand up in a court of law. Now go through the suspects and reinforce the idea that chn will need to use science to prove 'beyond reasonable doubt' who committed the crime. Complete the BBC quiz (not q. 10) (get chn to record their own answers on the sheets provided) as the final part of their 'selection process' for the Crime Lab - note

Testing materials in Year 2 Science-their topic is 'The Great Fire of London'.

Making cross curricular links in Year 1 with their 'Rocks' topic.

Particular year groups have topics with a Science theme. For example, the Stone Age in Year 3 and Materials in Year 1 .

Making cross curricular links in Year 1 with their 'Seaside' topic.

Science

- Making structures stronger for Mr Grinling's lighthouse decorations- Papier-mâché- balloon fish.
- Name and identify animals and their groups
- Rock pool creatures (links to Mr May's Lighthouse story)
- Make a poster on how to care for animals at the Seaside



Healthy eating is always promoted in school during themed weeks such as 'World Book Day' and during STEM week.

WO1- There are appropriate links between science and other learning.

Different visitors come in to school on a regular basis and links are being made with parents to deliver science based sessions.



We have great themed days that have science specific themes, such as litter picks, outdoor classroom day and other eco led activities in the garden in Eco Club.



Year 2 enjoying time den building using materials at the rising sun.

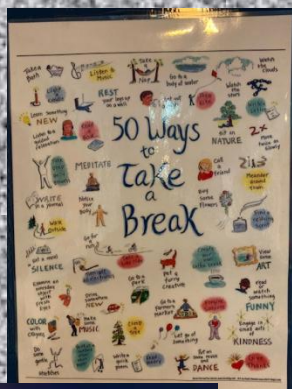
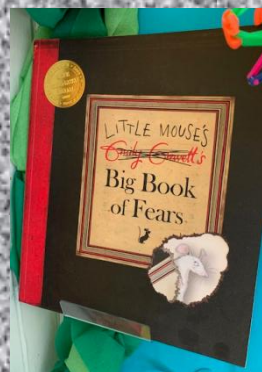


Year 4 and 5 enjoying a workshop with students from Newcastle University.





Healthy eating is always promoted in school during themed weeks. Mental health week was also celebrated where children learned how to manage emotions and learn about their bodies



W02- There are appropriate links with families, other schools, communities and outside organisations to enrich science learning..



SCITT students from the local authority teacher training programme came to Amberley as part of a 'Science Good Practise Day'. The feedback was very positive



Year Two Homework Challenges Autumn 1 2018		
IT/History	Science	PSHE
Use the internet to find out 5 (or more) facts about Florence Nightingale. Can you find any pictures of Florence? 16.10.2018	Collect a range of different materials from around your home. Investigate how the shape of some materials can be changed by squashing, bending...	Design a superb behaviour rule poster for our classroom.

Science homework is completed in Year2, Year3, Year4 and Year5.



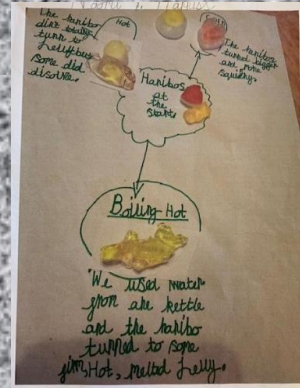
"Loved the Science GDP today. Real big fan of Science and this has given me great ideas of how to implement it in and out the classroom effectively . Very interested in leading Science in school. "
SCITT student, 2019



Children in Year 2 also went home to complete their own investigation after their science lesson at school.

W02- There are appropriate links with families, other schools, communities and outside organisations to enrich science learning..

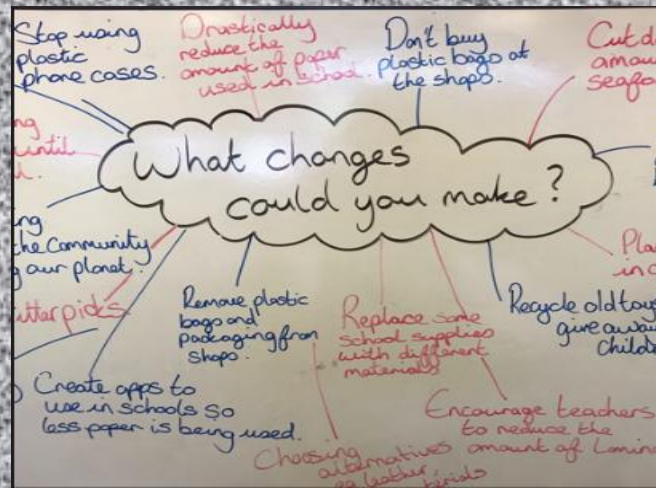
"I love doing Science at home with my mam because I get to do lots of experiments."
Abbie, Year 2



Eco Warriors meet half termly to discuss sustainability issues in school and discuss issues in the local environment.



Children in Year 6 discussed issues in the environment. Their task at home was to think about changes they could make as individual.



Our Eco Warrior children and the Golden Time Science group litter picking around the school grounds.