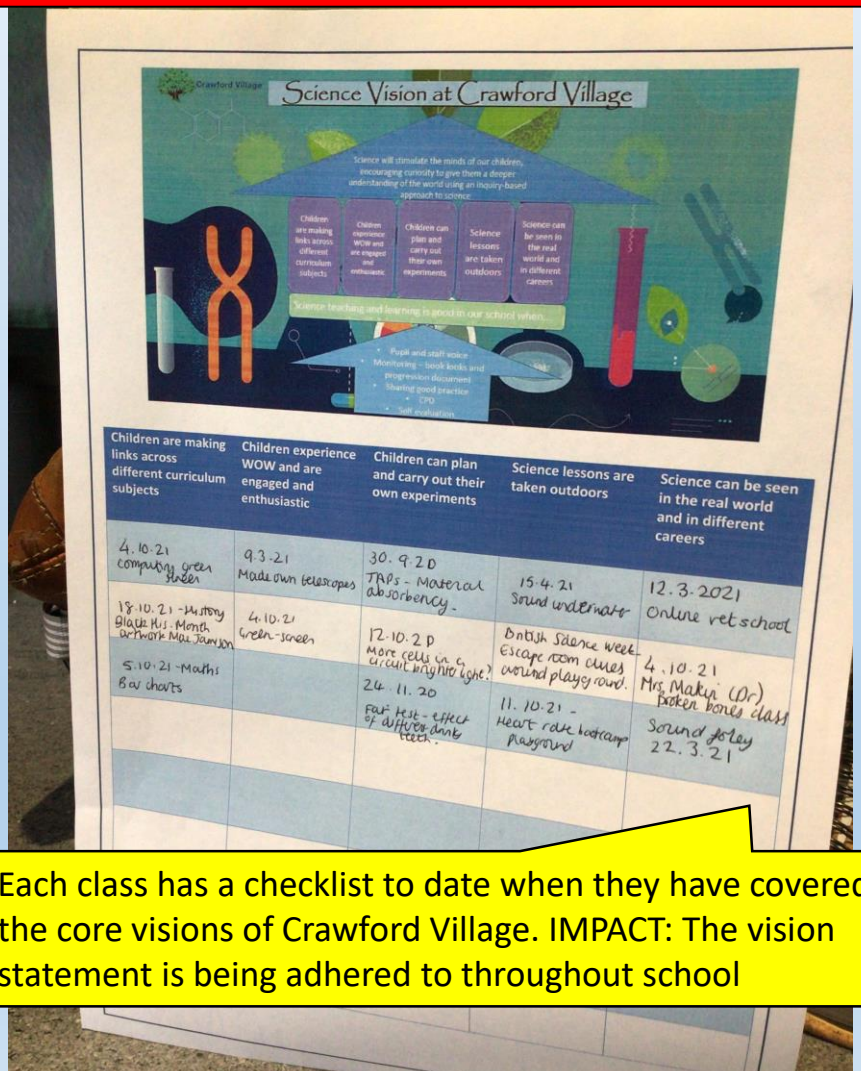
Crawford Village Primary School PSQM Award

SL A.

There is a clear vision for science, created and implemented by teachers and children, through principles for teaching and learning.

Taking our learning outside- does sound travel faster under water? IMPACT: Children were engaged and enjoyed not worrying about making a mess in the classroom. They planned their own experiment and felt like 'true scientists' in the words of one child.

Planning their own investigation based around a question. IMPACT: The children were curious to apply their knowledge from the classroom to their world outside.



Each class has a checklist to date when they have covered the core visions of Crawford Village. IMPACT: The vision statement is being adhered to throughout school

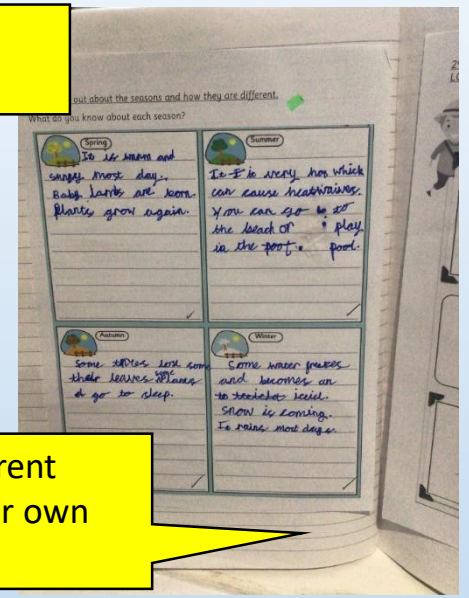
SL C.

There is a monitoring cycle, including pupil voice, that informs actions taken and the development of science.

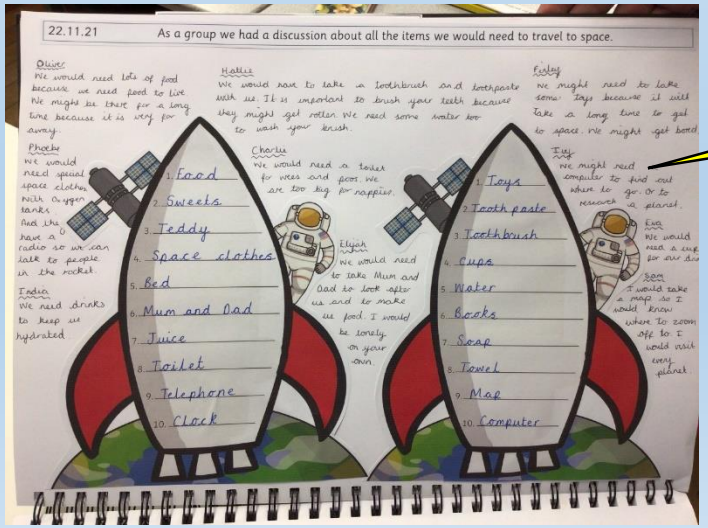
Book Look Monitoring Sheets Aut 1 2021		Subject: Science
Focus	**Class 2**	**Class 3**
Teaching (*Quality of marking; cross-curricular skills; match long term plan and LO matching what work is evidenced*)	Some lessons need to be linked to LO Matches long term plan Marking policy is being followed Strong cross curricular links to maths Display – key words, children's work	Lessons link to LO Matches long term plan Marking policy is being followed Display- 3d and interactive (heart labelled corre with key words)
Differentiation	Some differentiation evidenced for different year groups	No differentiation- mostly differentiated by inpu scaffolding put in place during lesson (word ban staff support) to not put a ceiling on learning.
Attitudes (*Any indications of pupils' attitudes and response to their work*)	Bethany, Charlie and Dash- very animated about their lessons- they excitedly spoke about using the green screen to be weather reporters explaining why the seasons change. They would like to use this more in lessons.	Luna, Alfie & Lucas- enjoyed planning their ow scientific investigation for heart rates and jo boot camp to see if exercise has an effect o rate. They also enjoyed using the green create their own science shows all abo They would like less writing and mo lessons.
Strengths Class 1 in particular evidenced different ways to present their findings- charts and tallies. Class 2 – LOs are now linked to what the task is. Children have used ICT to present findings and use concept maps to add more information to the changing seasons. Lessons were taken outside as per our science vision. Can see a progression of children writing experiments- starting with a question that children think of a way to prove (how different muscles work) Class 3 have introduced more cross curricular links- maths (creating own graphs), literacy comprehensions linked to science, Art (black history Mae Jamison Artwork) Computing (green screen for heart video) Lessons were taken outside as per our science vision.		<u>Areas for improvement and Next Steps</u> More writing needed for year 3 in science books, rather than typed up. More children's work displayed in class 3 needed Crawford Village Primary School & Nursery

Example of book look and pupil voice feedback.
IMPACT: Year 3 children started to write their own experiments after this feedback, and more work was displayed in class 3.

Before- pictures not labelled



After- distinguishing different seasons and applying their own knowledge



Pupil voice in floor books EYFS

Feedback is given back to teachers verbally on the day of either the observation or book look. Written up lesson observations are given later on in the week including next steps to take.
IMPACT: Any gaps or issues are quickly identified and acted upon swiftly.

Science Monitoring Schedule 20-21

	Spring 1	Spring 2	Sum 1	Sum 2
Pupil and Teacher [illegible] audit	[illegible].21			w/c 28.06.21
[illegible] *	w/c 08.2.21		w/c 17.5.21	
[illegible]rvations		w/c 15.3.21		w/c 5.7.21
[illegible]ollation of Science Assessments for progression folder**	w/c 01.02.21	w/c 22.03.21	w/c 10.05.21	w/c 05.06.21
Working Scientifically evidence on display	w/c 18.1.21	w/c 15.3.21	w.c. 26.04.21	w/c 5.7.21
Update A3 progression document		w/c 22.03.21		w/c 05.06.21
Update website Science Page	w/c 25.1.21 w/c 08.2.21	w/c 15.03.21	w/c 03.05.21 w/c 24.05.21	w.c 12.07.21

*Book monitoring schedule to ensure high standards of presentation, working scientifically skills are evidenced, scaffolding learning on 3 year rolling plan and medium term plans are being followed.

**TAPS science assessments to be done week 4th or 5th of each half term

SL C.
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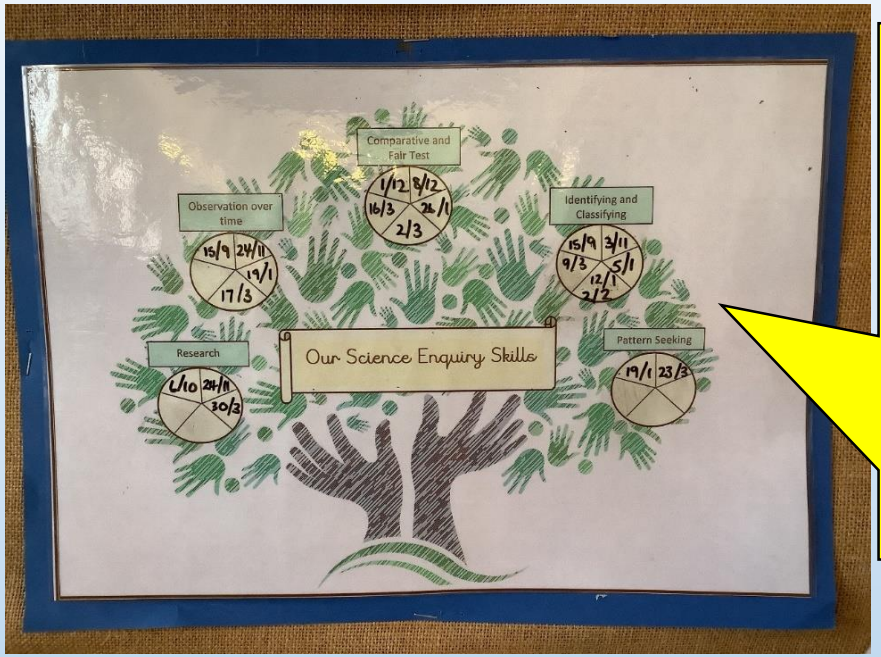


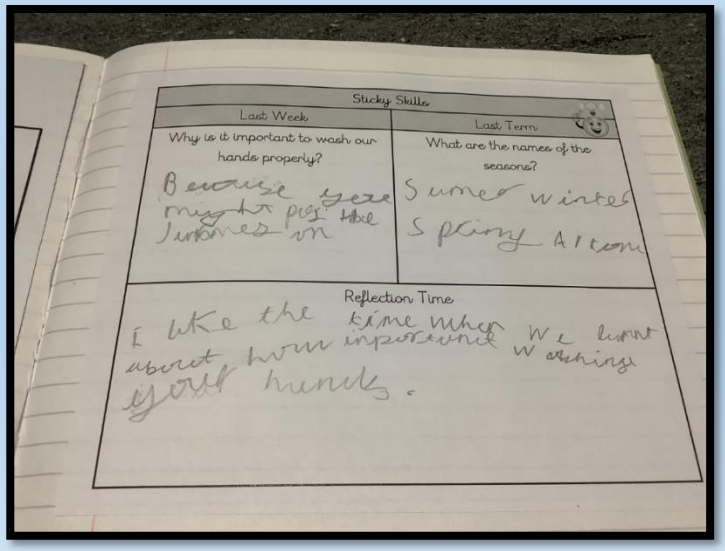
Crawford Working Scientifically Pie: Impact- even coverage to key skills. This allows the teacher to track which WS strand has been covered, and how often.

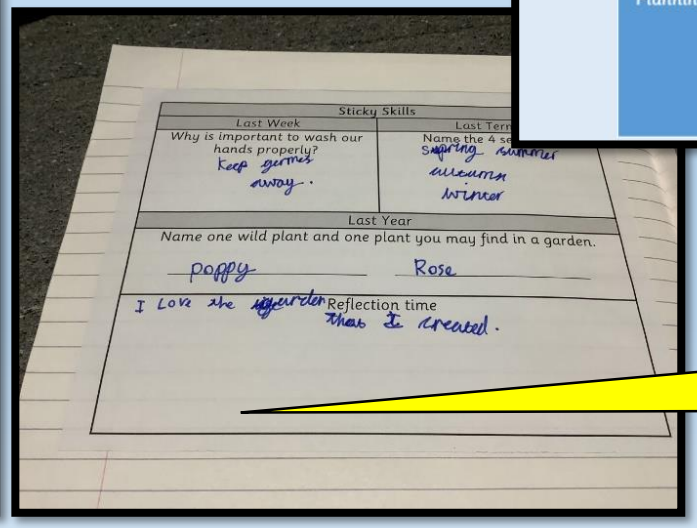
Clear progression mapped across year groups

Progression in Working Scientifically

Crawford Village Primary School

	Year 1 (KS1 skills)	Year 2 (KS1 skills)	Year3 (Lower KS2 skills)	Year 4 (Lower KS2 skills)	Year 5 (Upper KS2 skills)	Year 6 (Upper KS2 skills)
Working Scientifically	To use the following practical scientific methods, processes and skills (adult support may be needed)	To use the following practical scientific methods, processes and skills **with increasing confidence**	To use the following practical scientific methods, processes and skills	To use the following practical scientific methods, processes and skills	To use the following practical scientific methods, processes and skills	To use the following practical scientific methods, processes and skills
Questioning and enquiring Planning	Ask simple **questions about the world around us.** Begin to recognise that they can be answered in different ways (different types of enquiry including - observing changes over time, noticing patterns, grouping and classifying, carrying out simple comparative tests, finding things out from secondary sources). I can ask a few simple questions about the world around us. I can begin to use some different types	Ask **questions about the world around us.** Recognise that they can be answered in different ways (different types of enquiry including - observing changes over time, noticing patterns, grouping and classifying, carrying out simple comparative tests, finding things out from secondary sources). I can ask simple questions about the world around us. I can begin to use	Ask some **relevant questions and use** different **types of scientific enquiries** to answer them. Begin to explore everyday phenomena and the relationships between living things and familiar environments. Begin to develop their ideas about functions, relationships and interactions. Begin to raise their own questions about the world around them. Begin to make some decisions about which	Ask **relevant questions and use** different **types of scientific enquiries** to answer them. Explore everyday phenomena and the relationships between living things and familiar environments. Begin to develop their ideas about functions, relationships and interactions. Raise their own questions about the world around them. Make some decisions about which types of enquiry will be the	Begin to plan different types of **scientific enquiries to answer questions, including recognising and controlling variables** where necessary. Begin to explore and talk about ideas, ask their own questions about scientific phenomena, analyse functions, relationships and interactions more systematically. Begin to recognise some more abstract ideas and begin to recognise how these ideas help them to understand how the	Plan different types of **scientific enquiries to answer questions, including recognising and controlling variables** where necessary. Explore and talk about ideas, ask their own questions about scientific phenomena, analyse functions, relationships and interactions more systematically. Begin to recognise more abstract ideas and begin to recognise how these ideas help them to understand how the world operates.





Sticky skills to support retrieval practice and reflection time IMPACT: Pupil voice is evident throughout books

T A.
There is provision and signposting of relevant internal or external professional development and support with which staff engage.

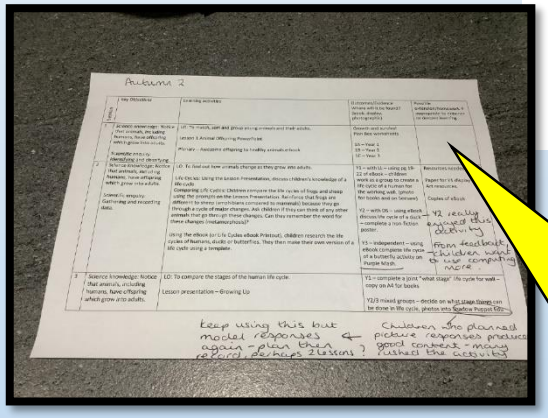
A running list of CPD engaged with in staff share. IMPACT: empowering staff to direct their own CPD to their needs

PSQM

Crawford Village Primary School & Nursery

CPD Science

CPD:	Date and Initial
Science Leadership SHARES	19th April 2021
KS1 Science SHARES	9th June 2021 DS
Lower KS2 Science SHARES	14th June 2021 DS
Sticky Learning in science SHARES	29th September BM
Curriculum intent and implementation	30th September 2021 BM



Annotated Science Plan. IMPACT: Teachers are reflecting on their own teaching and the child's learning journey to develop the lesson and pick up any misconceptions that need addressing.

CPD evaluation log. Impact: This has helped focus the CPD provision and allow for impact to be monitored

CPD Evaluation & Impact

Training Course Evaluation

Name: Debra Eaton Science Subject Leadership (through SHARES)

Location: Online

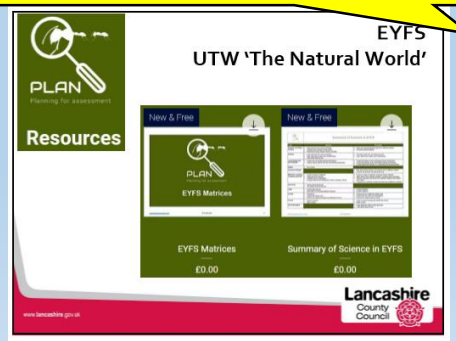
Date: 8.12.21

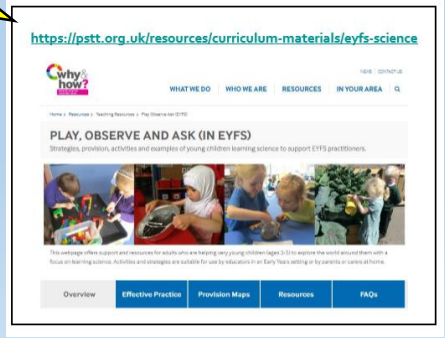
Rating	Excellent	Very Good	Good	Average	Fair	Poor	Comments
To what extent did the course meet your expectations?	x						
Quality of trainer/lecturer/leader	x						
Quality of training materials	x						
How will the training help you improve the quality of learning and teaching?	I now have access to a new bank of resources to cascade top all staff. In particular, there is a focus on EYFS						
How will the training benefit the school?	Whole school vision for science is shared across the school. EYFS practitioners are teaching concepts in line with KS1 & KS2						
What did you most like about this course?	The course was clear and easily accessible, providing me with additional resources. The trainer touched on a range of different strategies to assist with whole school subject leadership.						
How could the course be improved?	Hyperlinks to resources could be embedded within slide show for ease of access.						
Would you recommend this course?	Yes						
Any further comments:	Ideas for EWYFS shared with staff. Monitoring to be scheduled observe the science in action.						

Staff meetings are held for staff CPD. I have led some sessions as a whole where gaps have been identified during this process, such as introducing CLEAPS.

REACHOUT CPD is available for staff who wish to develop their scientific skills or knowledge further. They feedback their course at a staff meeting to the rest of the staff. IMPACT: It has encouraged staff to access professional development whilst engaging them with how we can utilise their training in school.

Slides from SHARES CPD – as part of this CPD , we looked at practice within EYFS. The sites and resources were shared with EYFS lead



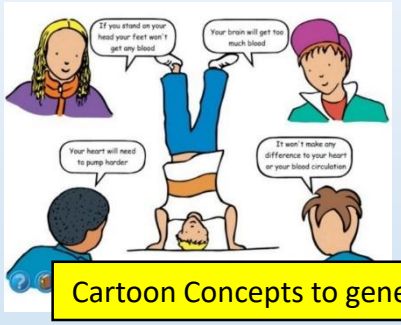


EYFS using the 'I see, I notice, I wonder materials cascaded from the CPD session, exploring different species of plants and what those plants need to help them grow. The children plant and then pick the vegetables when ripe, they explore them and look at the different seeds, talking about the texture, colour smell and taste.
They usually make something using them., including seasonal soups and kebabs. (pics 1-4)

T B.

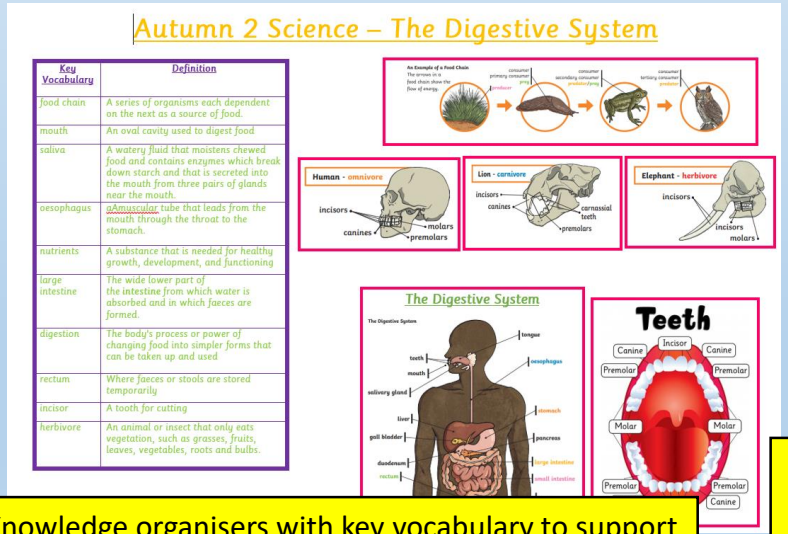
Teachers are supported to use a range of effective strategies for teaching science which challenge and support the learning needs of all children.

Challenge: Challenge cards are used in lessons to further push children's scientific thinking. Concept cartoons are used in lessons to form big class discussions around a concept.
IMPACT: It has generated higher level scientific thinking and challenges the childrens' perceptions of science. It has encouraged them to use their preconceived ideas and challenge them with their new scientific learning.

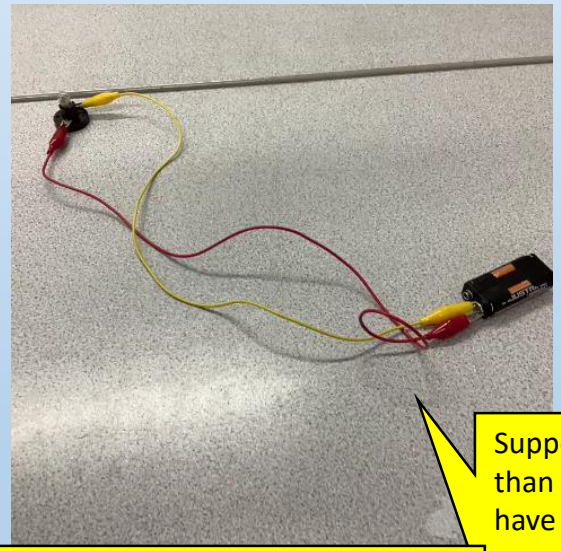


Cartoon Concepts to generate discussion

The use of digital thermometers and data loggers evidencing a range of T&L approaches.
Impact: Pupils had the chance to experience real life science, participate like real scientists and adapt and change their experiments based on the results they were gathering. This built confidence with using technology that is not normally present in class.



Knowledge organisers with key vocabulary to support understanding IMPACT-This has helped lower ability children to retrieve information, allowing them to use key vocabulary in their work.



Video of edupuppet in action
Click here

Support is in place for learners who may require it more than others. This includes using ICT to support learning. We have introduced 'edupuppet' which allows children to talk over pictures. IMPACT: This has supported dyslexic learners and those who struggle to write due to physical abilities. It allows them to engage in scientific discussions without the stress of having to record something in their books.
We are also using Siri to type a child's investigation using voice recognition software.

T C.

Resources are audited annually, well-organised and accessible, so that children can regularly and safely use appropriate practical and digital resources, information texts and the outdoor environment.

Science equipment is organised into bins. The children select what they think is appropriate for their experiment.

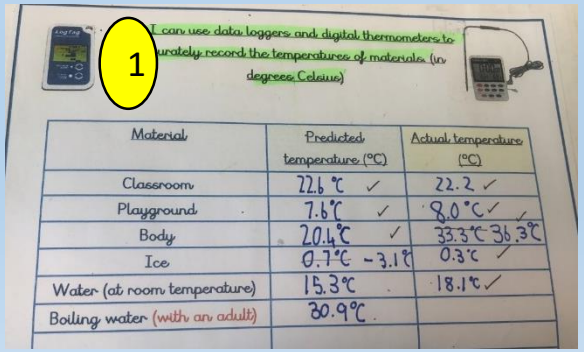
Using digital equipment to improve accuracy of results

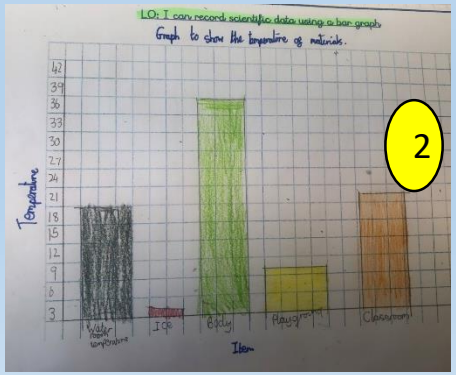
WhizzPopBang magazines are available in the library, as well as a selection of different books about famous scientists.
Max, in Year 6, explained how, after reading the article on salt and ice, he was able to use this prior knowledge and apply it in the practical investigation.

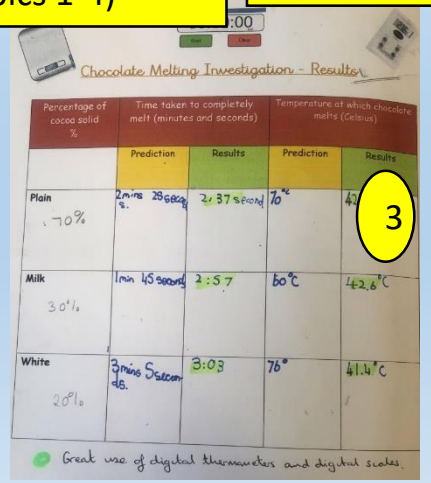
Identifying & classifying in the outdoor environment

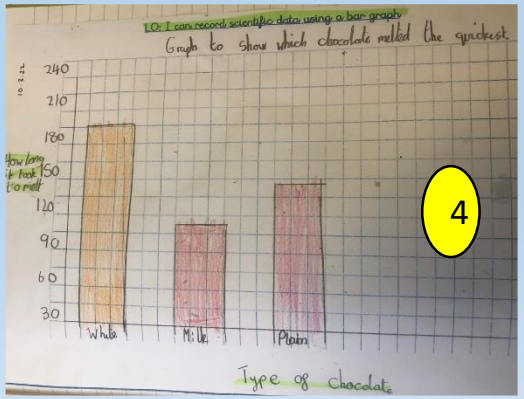
Using our senses in the outdoor environment Video Evidence – click here

The use of digital thermometers and digital scales can be clearly seen here with the impact being a marked increase in the accuracy of recording results (pics 1-4)

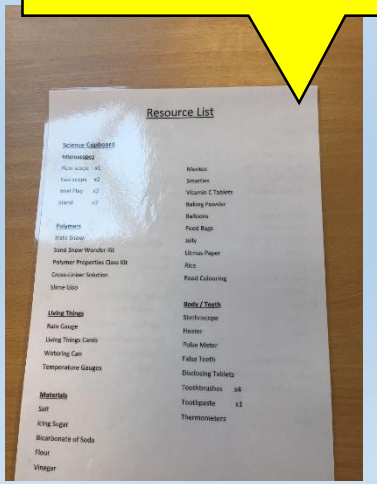




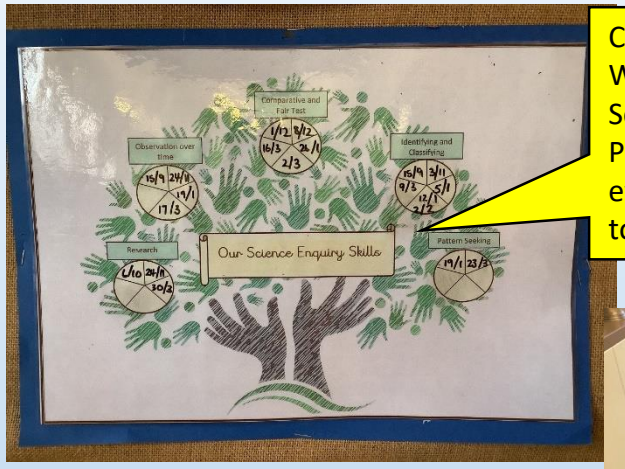




The resource list is audited annually, as well as all components of electrical circuits tested.



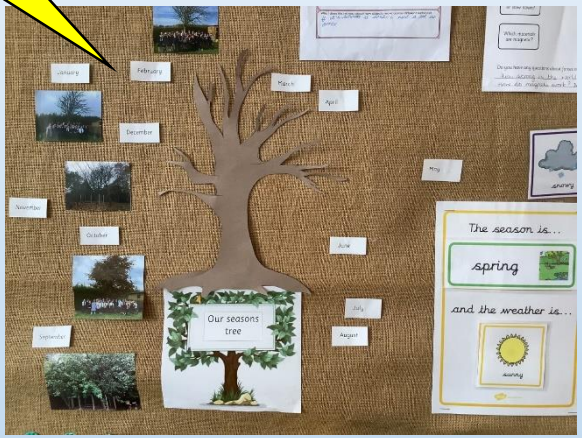
L A.
Children are taught to use different enquiry types to answer scientific questions about the world around them, through the use of scientific enquiry skills.



Crawford Working Scientifically Pie: Impact- even coverage to key skills

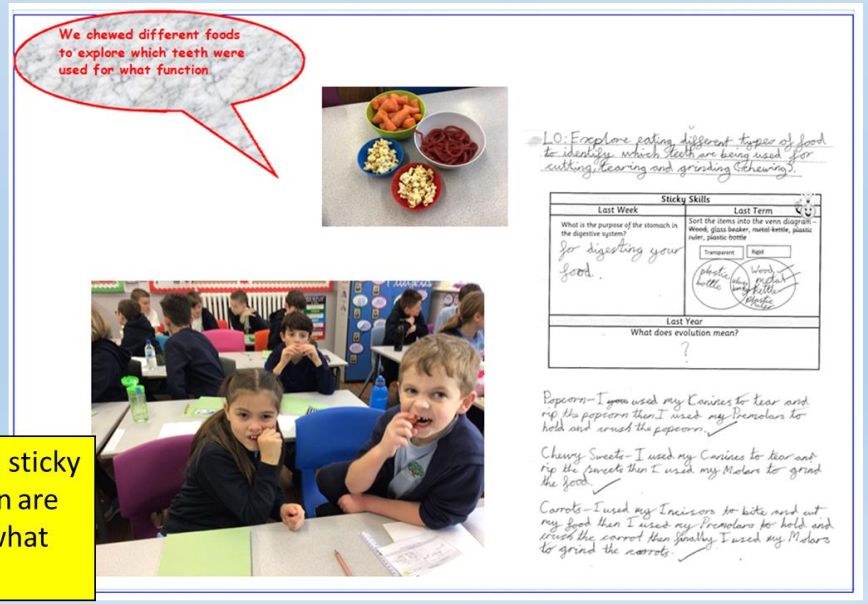
Observing over time

Using photos of science lessons, evidence from books and pupil voice, we have created a portfolio of science progression. IMPACT: A clear timeline of progression is evident at a glance throughout school.



Identifying & Classifying

Fair Testing



Year 4 : Independent investigation and sticky skills evident in book. IMPACT: Children are using retrieval practice to remember what they have learnt.

L A.
Children are taught to use different enquiry types to answer scientific questions about the world around them, through the use of scientific enquiry skills.

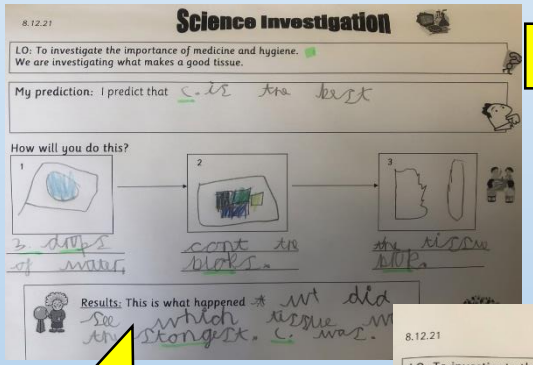
Examples of teachers' planning which clearly pinpoints which scientific skill will be covered

Session	Key Objectives	Learning activities	Outcomes/Evidence Where will it be found? (book, display, photographic)	Possible extension/homework if appropriate to enhance or deepen learning
1	Science knowledge: Scientific enquiry:	First day back When in our lessons, firstly we learn lots of science related knowledge, but I want us to behave like scientists as well – this means we work scientifically. Go through the way we work scientifically and show the logos. First topic – seasons and weather Use Classroom Screen to create a class tally about our favourite seasons. Go outside – what can they observe – we need to choose a tree to monitor over the course of the year.		
2	Science knowledge: Observe and describe weather associated with the seasons. Scientific enquiry: Observing closely, using simple equipment.	LO: To find out what we know about weather. Wonderful Weather Block planning – lesson 1	Group work created for display	
3	Science knowledge: Observe and describe weather associated with the seasons. Scientific enquiry: Identifying and classifying	LO: To find out about the seasons and how they are different. Whole class teaching: What is the weather like outside today? Children to describe the weather to a partner, then share with the class. How many seasons are there? What season is it today? What is the weather normally like in each season? Consider together these questions: *What do we expect the weather to be like tomorrow? How can we tell?* https://www.bbc.co.uk/teach/class-clips-video/the-four-seasons/z4vjmfr	Y1 – complete a seasons wheel, drawing the season and labelling the seasons. Y2 – complete a seasons wheel, drawing the season and labelling the months. Y3 – complete sentences about each season.	

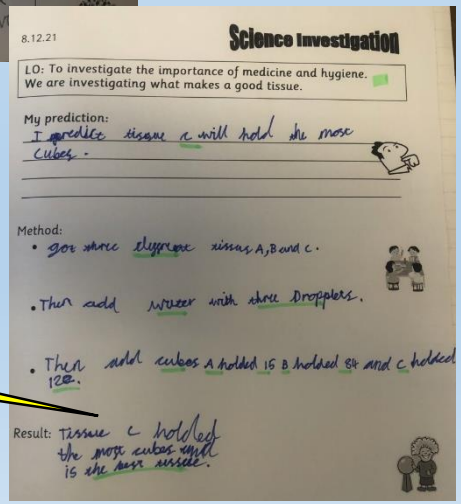
Session	Key Objectives	Learning activities	Outcomes/Evidence Where will it be found? (book, display, photographic)	Possible extension/homework if appropriate to enhance or deepen learning
1	Science knowledge: Notice that animals, including humans, have offspring which grow into adults. Scientific enquiry: Identifying and classifying.	LO: To match, sort and group young animals and their adults. Lesson 1 Animal Offspring PowerPoint Plenary – Awesome offspring to healthy animals e-book	Growth and survival Plan Bee worksheets 1A – Year 1 1B – Year 2 1C – Year 3	
2	Science knowledge: Notice that animals, including humans, have offspring which grow into adults. Scientific enquiry: Gathering and recording data.	LO: To find out how animals change as they grow into adults. Life Cycles: Using the Lesson Presentation, discuss children's knowledge of a life cycle. Comparing Life Cycles: Children compare the life cycles of frogs and sheep using the prompts on the Lesson Presentation. Reinforce that frogs are different to sheep (amphibians compared to mammals) because they go through a cycle of major changes. Ask children if they can think of any other animals that go through these changes. Can they remember the word for these changes (metamorphosis)? Using the eBook (or Life Cycles eBook Printout), children research the life cycles of humans, ducks or butterflies. They then make their own version of a life cycle using a template.	Y1 – with LL – using pg 19-22 of eBook – children work as a group to create a life cycle of a human for the working wall. (photo for books and on Seesaw) Y2 – with DS – using eBook discuss life cycle of a duck – complete a non-fiction poster. Y3 – independent – using eBook complete life cycle of a butterfly activity on Purple Mash.	Resources needed: Paper for Y1 display Art resources Copies of eBook

Evidence of how the planning for WS is transferred into practical investigations to practise WS skills.
Impact: Children continuously practise a different WS skill to broaden their understanding

Progression in recording skills (Y1 – Y3 – Y6)

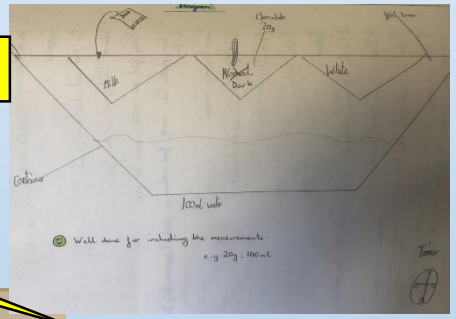


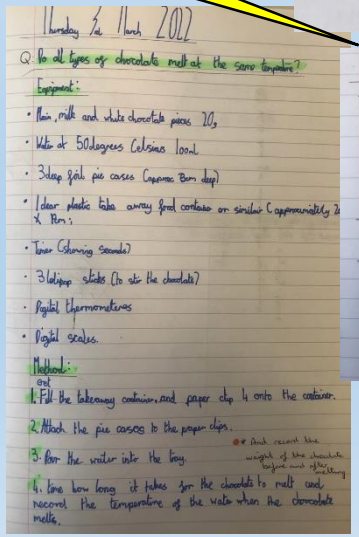
Year 1

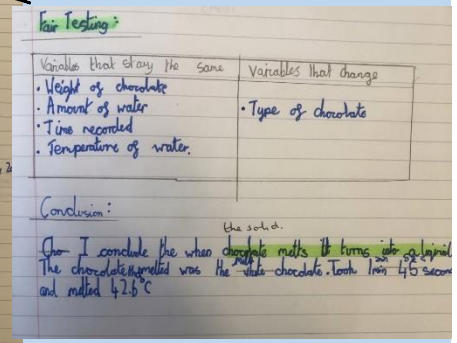


Year 3

Year 6







Focus[illegible]ment of Science

Topic: Animals – including humans	Title: Comparing tissues
Working Scientifically Using their observations and ideas to suggest answers to questions.	**Conceptual Knowledge** Recognise what makes a good tissue based on absorbency and strength.

The children were asked to test (a) absorbency by measuring small amounts of water with a pipette and (b) strength by testing how many blocks each tissue will hold. They were then asked to record their findings and assess their own prediction.

Key Questions to Support Learning

- What do you notice about the different tissues?
- What do the layers of the tissues do?
- How do tissues help with hygiene?
- What differences can you see between the tissues?

Children meeting the objective would be able to describe what they see and explain how this helps to make a good tissue (or not).

Pupils WTS for this unit: CRB, FT, SR, LC, MW

L B.

A range of strategies and processes for formative, summative and statutory assessment are used, which reflect a shared understanding of the purposes of assessment in science and current best practice.

Focused assessment: TAPS

Plan for Focused Assessment of Science

Topic: Materials	Year 4,5,6 Age 8-11	Title: Nappy Absorbency

Working Scientifically
Fair test
Observation over time

Conceptual Knowledge
Knowledge of absorbent materials
Which branded nappy is the most absorbent?

Assessment Focus
- Can children create a fair test when given an objective
- Can they record their findings accurately

Activity
- Children will be given 4 different branded nappies.
- They are to create their own fair test considering which variables to keep the same/ change
- They are to use the same amount of water per nappy to test the absorbency, leave for a few seconds and observe how quickly the water is absorbed,
- They are then to wring out the water into a cup and see which nappy held the most water
- They are to include a hypothesis, method, results and a conclusion

Adapting the activity
Support: Year 4's – with ideas on how to collect the water when wringing it out. Reduce to 3 nappies.
Extension: Choose one nappy brand- what is the greatest amount of water it can hold?

Key Questions
- Which nappy is the most absorbent?
- Which nappy absorbed the water the quickest?
- Which nappy would you recommend to a new mum?

Assessment Indicators
Not yet met: Which nappy held the most water without recording measurements or fair test

Meeting: Amount of water recorded with a fair test written in the method, indicating different variables and what to change.

Exceeding: Predictions, method, fair test noted and reasons for which nappy they would recommend.

TAPS Plan for Focused Assessment of Science

Topic: Animals including humans	Year 4 Age 8-9	Title: Teeth (eggs) in Liquids

Working Scientifically
Review: Use results to draw simple conclusions, suggest improvements and raise further questions.

Concept Context
Function of teeth – to find out about what damages teeth and how to look after them.

Assessment Focus
- Can children use results to draw conclusions?
- Can children suggest explanations for their findings?

Activity *This week we are dental scientists.*
Discuss how children look after their teeth. Explain that we will be using hard boiled eggs to represent teeth to investigate tooth decay. As a class set up a fair test to investigate the effects that different liquids have on teeth e.g. cola, water, vinegar, milk, sports drink and orange juice. Discuss how they can make the comparison fair, i.e. as to quantity of liquid, types of containers, time and location (if using milk do they all need to be in the fridge?)
Leave for one week, although children can check on the experiment daily to see if they can notice and changes. After one week, unveil the eggs by tipping into a white bowl and photograph.
Children to record their observations (look, feel, smell, etc.) and rate the eggs in order of damage to shell observed. Children to consider how they could improve the test and what further questions arise that they could investigate.

Questions to support discussion
- What do you think will happen? Why?
- Why have some 'decayed' more than others?
- What do you think is in the liquid that is making this happen?
- Were there any surprises?
- How is this this similar to your teeth? How is this different?
- What would happen if the eggs were cleaned daily with toothpaste?
- What other question would you like to investigate and how would you do this?

Assessment Indicators
Not yet met: Describes differences, e.g. *the egg is OK in milk/water but not in coke.*

Meeting: Can order liquids according to damage done to eggs and suggest reasons why. Able to raise further questions, *e.g. I thought sports drink/orange juice was a 'healthy' drink but it was not, I wonder whether these drinks contain a lot of sugar?*

Possible ways of going further: Would be able to think about other liquids or factors including acid and carbonated drinks and suggest causal relationships, *e.g. the more acid/sugar in the drink, the worse the damage.* Can recognise problems with the test, e.g. *use of eggs not teeth, eggs were in liquid for 1 week but I do not keep coke in my mouth for 1 week!*

PUPIL VOICE: WOW! That was awesome! I love the different investigations we do in science." Lucy M on being an electrical engineer for our science lesson

Working Scientifically
Review: Report on findings from enquires, including oral and written explanations, displays or presentations of results and conclusions.

Activity *Today we are electrical engineers.*

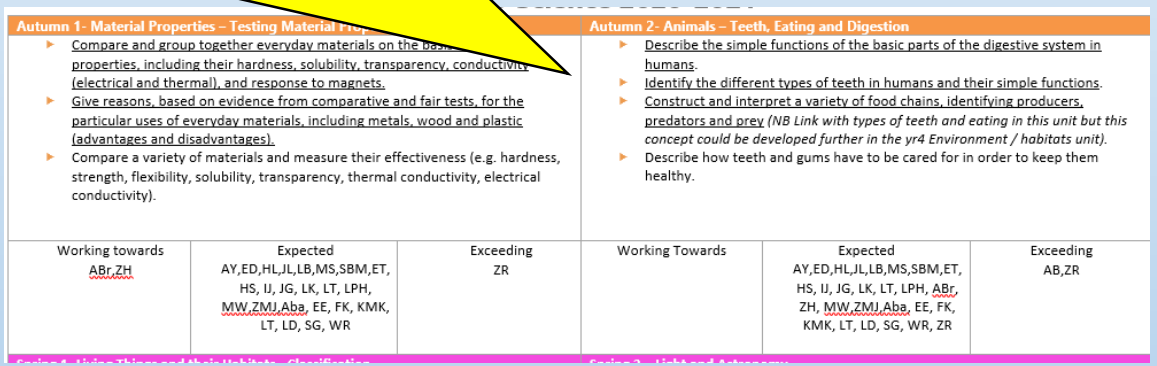
Introduce the terms conductors and insulators.
Example context: soldiers wear 'smart' clothing which conducts electricity: http://www.bbc.co.uk/news/technology-17580666
E.g. a soldier in the desert that has ripped part of 'smart' clothing losing part of the GPS circuit, so unable to provide location for rescue. Explain that the soldier has a pack containing a variety of objects: which could be used to complete a circuit to activate the GPS?
Provide each group with a 'soldier's backpack' containing a collection of objects/ materials (including different metals and plastics). Discuss how to find out whether electricity can pass through the materials. Groups test by putting materials into a gap in a circuit with a bulb/buzzer.
Focus pupil recording/presenting on explaining what the results show. E.g. they could produce a radio or video message to send to the soldier explaining how to produce a working circuit and why they are confident that this will work, providing scientific evidence and a list of all possible conductors (in case some are damaged). Recap on the terms insulators and conductors.

We also use the iPad to record TAPS evidence
IMPACT: Follows NC advice of allowing children to develop their communication and oral skills

L B.

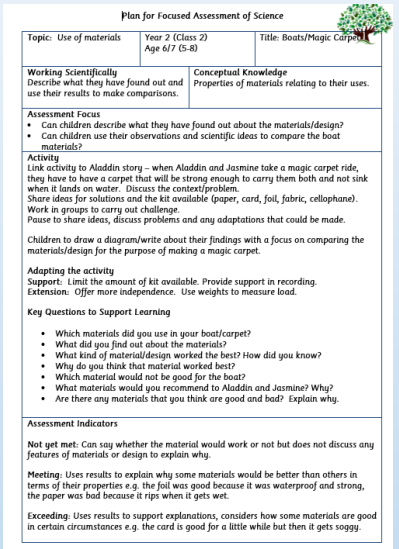
A range of strategies and processes for formative, summative and statutory assessment are used, which reflect a shared understanding of the purposes of assessment in science and current best practice.

Science knowledge and skills assessed formatively throughout the year using a traffic light system by the Lesson Objective. IMPACT: Children who are falling behind are picked up and supported more in their lessons. As you can see from this assessment, Abr & ZH were identified as struggling. They were given steps to success in each lesson and highlighted on science plans for extra support. The following half term, they achieved the objective.



Autumn 1- Material Properties – Testing Material			Autumn 2- Animals – Teeth, Eating and Digestion		
Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic (advantages and disadvantages). Compare a variety of materials and measure their effectiveness (e.g. hardness, strength, flexibility, solubility, transparency, thermal conductivity, electrical conductivity).			Describe the simple functions of the basic parts of the digestive system in humans. Identify the different types of teeth in humans and their simple functions. Construct and interpret a variety of food chains, identifying producers, predators and prey *(NB Link with types of teeth and eating in this unit but this concept could be developed further in the yr4 Environment / habitats unit).* Describe how teeth and gums have to be cared for in order to keep them healthy.		
Working towards ABr,ZH	Expected AY,ED,HL,JL,LB,MS,SBM,ET, HS, IJ, JG, LK, LT, LPH, MW,ZMJ,Aba, EE, FK, KMK, LT, LD, SG, WR	Exceeding ZR	Working Towards	Expected AY,ED,HL,JL,LB,MS,SBM,ET, HS, IJ, JG, LK, LT, LPH, ABr, ZH, MW,ZMJ,Aba, EE, FK, KMK, LT, LD, SG, WR, ZR	Exceeding AB,ZR

Concept Cartoons are used to stimulate discussion whilst relieving the text and language load. This has allowed teachers to assess pupils who cannot always represent their findings through a written medium



Plan for Focused Assessment of Science

Topic: Use of materials	Year 2 (Class 2) Age 6/7 (5-8)	Title: Boats/Magic Carpet
Working Scientifically Describe what they have found out and use their results to make comparisons.		**Conceptual Knowledge** Properties of materials relating to their uses.

Assessment Focus
- Can children describe what they have found out about the materials/design?
- Can children use their observations and scientific ideas to compare the boat materials?

Activity
Link activity to Aladdin story – when Aladdin and Jasmine take a magic carpet ride, they have to have a carpet that will be strong enough to carry them both and not sink when it lands on water. Discuss the context/problem.
Share ideas for solutions and the kit available (paper, card, foil, fabric, cellophane).
Work in groups to carry out challenge.
Pause to share ideas, discuss problems and any adaptations that could be made.

Children to draw a diagram/write about their findings with a focus on comparing the materials/design for the purpose of making a magic carpet.

Adapting the activity
Support: Limit the amount of kit available. Provide support in recording.
Extension: Offer more independence. Use weights to measure load.

Key Questions to Support Learning
- Which materials did you use in your boat/carpet?
- What did you find out about the materials?
- What kind of material/design worked the best? How did you know?
- Why do you think that material worked best?
- Which material would not be good for the boat?
- What materials would you recommend to Aladdin and Jasmine? Why?
- Are there any materials that you think are good and bad? Explain why.

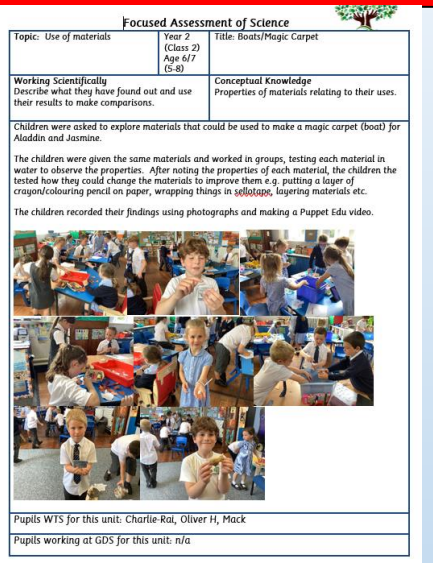
Assessment Indicators

Not yet met: Can say whether the material would work or not but does not discuss any features of materials or design to explain why.

Meeting: Uses results to explain why some materials would be better than others in terms of their properties e.g. the foil was good because it was waterproof and strong, the paper was bad because it rips when it gets wet.

Exceeding: Uses results to support explanations, considers how some materials are good in certain circumstances e.g. the card is good for a little while but then it gets soggy.

The examples here show how TAPS planning can be clearly seen to identify the WS skill through a focussed assessment. The subsequent evidence demonstrates how teachers can then reliably assess which pupils the WS skills and make judgements.



Focused Assessment of Science

Topic: Use of materials	Year 2 (Class 2) Age 6/7 (5-8)	Title: Boats/Magic Carpet
Working Scientifically Describe what they have found out and use their results to make comparisons.		**Conceptual Knowledge** Properties of materials relating to their uses.

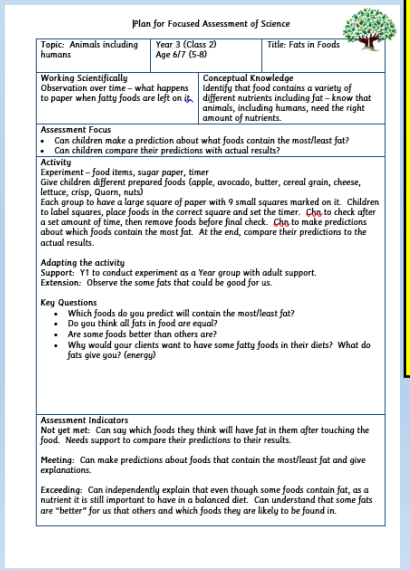
Children were asked to explore materials that could be used to make a magic carpet (boat) for Aladdin and Jasmine.

The children were given the same materials and worked in groups, testing each material in water to observe the properties. After noting the properties of each material, the children the tested how they could change the materials to improve them e.g. putting a layer of crayon/colouring pencil on paper, wrapping things in sellotape, layering materials etc.

The children recorded their findings using photographs and making a Puppet Edu video.

Pupils WTS for this unit: Charlie-Rai, Oliver H, Mack

Pupils working at GDS for this unit: n/a



Plan for Focused Assessment of Science

Topic: Animals including humans	Year 3 (Class 2) Age 6/7 (5-8)	Title: Fats in Foods
Working Scientifically Observation over time – what happens to paper when fatty foods are left on it.		**Conceptual Knowledge** Identify that food contains a variety of different nutrients including fat – know that animals, including humans, need the right amount of nutrients.

Assessment Focus
- Can children make a prediction about what foods contain the most/least fat?
- Can children compare their predictions with actual results?

Activity
Experiment – food items, sugar paper, timer
Give children different prepared foods (apple, avocado, butter, cereal grain, cheese, lettuce, crisp, Quorn, nuts)
Each group to have a large square of paper with 9 small squares marked on it. Children to label squares, place foods in the correct square and set the timer. Chn to check after a set amount of time, then remove foods before final check. Chn to make predictions about which foods contain the most fat. At the end, compare their predictions to the actual results.

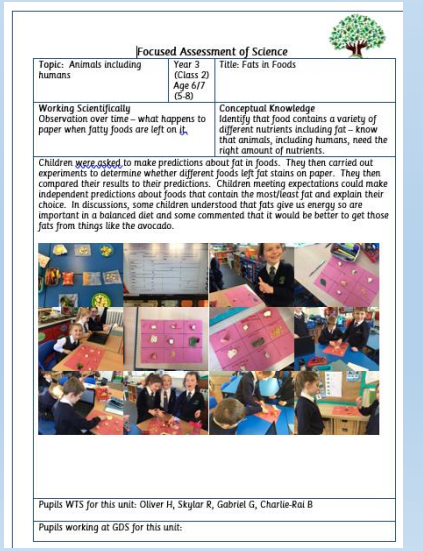
Adapting the activity
Support: Y1 to conduct experiment as a Year group with adult support.
Extension: Observe the some fats that could be good for us.

Key Questions
- Which foods do you predict will contain the most/least fat?
- Do you think all fats in food are equal?
- Are some foods better than others are?
- Why would your clients want to have some fatty foods in their diets? What do fats give you? (energy)

Assessment Indicators
Not yet met: Can say which foods they think will have fat in them after touching the food. Needs support to compare their predictions to their results.

Meeting: Can make predictions about foods that contain the most/least fat and give explanations.

Exceeding: Can independently explain that even though some foods contain fat, as a nutrient it is still important to have in a balanced diet. Can understand that some fats are "better" for us that others and which foods they are likely to be found in.



Focused Assessment of Science

Topic: Animals including humans	Year 3 (Class 2) Age 6/7 (5-8)	Title: Fats in Foods
Working Scientifically Observation over time – what happens to paper when fatty foods are left on it.		**Conceptual Knowledge** Identify that food contains a variety of different nutrients including fat – know that animals, including humans, need the right amount of nutrients.

Children were asked to make predictions about fat in foods. They then carried out experiments to determine whether different foods left fat stains on paper. They then compared their results to their predictions. Children meeting expectations could make independent predictions about foods that contain the most/least fat and explain their choice. In discussions, some children understood that fats give us energy so are important in a balanced diet and some commented that it would be better to get those fats from things like the avocado.

Pupils WTS for this unit: Oliver H, Skylar R, Gabriel G, Charlie-Rai B

Pupils working at GDS for this unit:

L C.

Initiatives that encourage all children to think that science is relevant and important to their lives, now and in the future, are supported and promoted

British Science Week 2021

Date: 12th Mar 2021 @ 4:10pm

This week, we have celebrated British Science Week 2021, and what a week it has been! We started off with an escape rooms task, whereby the children had to answer a series of science questions to gain the code needed to unlock a mysterious box found in their classroom. Much to the excitement of everyone, it was jam packed with treats!

We then participated in the British Science Association's poster competition. Class 2 based their posters around innovating designs for "Classrooms of the Future", whilst Class 3 challenged our perceptions of STEM careers by producing "Smashing Gender Stereotypes" posters. The results were brilliant, with entrants from Oliver, Henry, Lucy, Zac and Isla being sent to the British Science Association for the official competition.

Class 1 have been using their scientific skills to observe the changes happening all around us as Spring starts to appear. They have also watched how materials change as they baked some delicious cookies.

Class 2 and 3 joined a Live Youtube session with Theeb the vet. We were shown how cows are looked after at the cattle farm, and learnt all about their nutritional and environmental needs. We then compared their heart rates, breaths per minute and eyes to our own.

Class 3 have been investigating light and space, creating their own periscopes and spectroscopes and creating videos to send to Nasa all about Space!

Well done to Isla and Henry, who displayed creative thinking, curiosity and fantastic science knowledge throughout the week, and who we crowned our Scientists of the Month. They won a copy of Whizz Pop Bang magazine, and a STEM science investigation kit.

During British Science week, we participated in a 'Smashing Gender Stereotypes' competition to challenge the misconception that 'girls don't do science!' IMPACT: Empowering girls to consider a career in science

We joined in a live vet school to discover what it is like to work as a vet. We also invited an A&E consultant in to teach a topic on broken bones. A PT instructor visited us for a lesson on health exercise IMPACT: Children were exposed to different careers linked to science.

We link the start of each topic to a career, reading through job descriptions and having a discussions as a class about the job. Example, Year 4 sound topic- We have an interview with a foley artist. IMPACT: It has allowed children to revaluate what they think of when they think of STEM careers. Initially, they thought scientists always worked with chemicals and test tubes, however they know understand that STEM careers cover a much broader area.

L C.

Initiatives that encourage all children to think that science is relevant and important to their lives, now and in the future, are supported and promoted

We have extensively mapped out science capital to link trip ideas and other opportunities in school to celebrate science

Crawford Village Primary School Cultural Capital Curriculum Map 2021/

	Spring 1											
School Value	Respect											
	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk1	W				
Events Calendar	Big Schools Bird Watch World Braille Day Epihanu	World Religion Day National Obesity Week	Martin Luther King Day Big Energy Saving Week Guru Gobindh Singh birthday (Sikh) National Hug Day	Big Garden Bird Watch Burns Night Holocaust Memorial Day	National Storytelling Week Children's Mental Health Week Charles Dickens' birthday Chinese New Year National Hedgehog Day	E-safety Week Safer Internet Day Valentines Day	World Thinking Day Fair Trade Fortnight	Shrove Tuesday Ash Wednesday Women's History Month St Davids Day World Books Day Isra and Mi'raj (Islam)	Action Day National Careers week International; Women's Day	(Jewish) Science week Common-wealth Day St Patricks Day	Shakespeare Week First Day of Spring World Poetry Day International Day for the Elimination of Racial Discrimin-ation	Thursday Good Friday Palm Sunday Easter

Cultural Capital Opportunities - Class 2

Geography History Science Art DT Music RE English

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
School Value	Friendship	Kindness	Respect	Integrity	Perseverance	Happiness
Cycle A 2019/20	Penguins, Possums & Pigs (Y1) *Geog, Sci, Art*	Fire, Fire! (Y1) *Hist, DT, Music* *Discrete Science: Light & Shadows Y3*	Explorers (Y2) *Hist, Geog, DT* *Discrete Science: Scientists & Inventors Y2*	Great Outdoors (Y1) *Sci, Geog (incl fieldwork), DT*	Wind in the Willows (Y2) *Sci, Geog (incl fieldwork), DT* *Plus: Weather*	How Does Your Garden Grow (Y3) *Sci, DT*
Cultural Capital Experiences in class	*Facetime a farmer* *ENGLISH: Roald Dahl Day September*	*Local fire service talk / visit* *Harvest Festival* *Christmas Nativity*	*Role play landing on the moon* *A day in the life of a NASA astronaut* *Email NASA* *Chinese New Year* *ENGLISH: National Storytelling Week February*	*Go on a sound walk and create music outdoors* *ENGLISH: World Book Day March*	*Visit a bug school and create a bug class* *Visit to virtual zoo* *Make a percussion instrument*	*Grow own plants in class* *Visit / talk from a professional gardener/ botanist*
Cultural Capital Experiences out of class	*Trip to a local farm – Farmer Teds*	*Visit to a theatre to see a Pantomime*	*Young Voices*			*Visit to Haigh Hall Gardens / Worden Park with C1*
Events Calendar	*Refer to Annual Overview of Weekly Events Calendar*					

WO A.
Curriculum planning links science to other areas of learning.

Our curriculum plans cover a 3-year cycle and links to other subjects are explicitly made for each topic

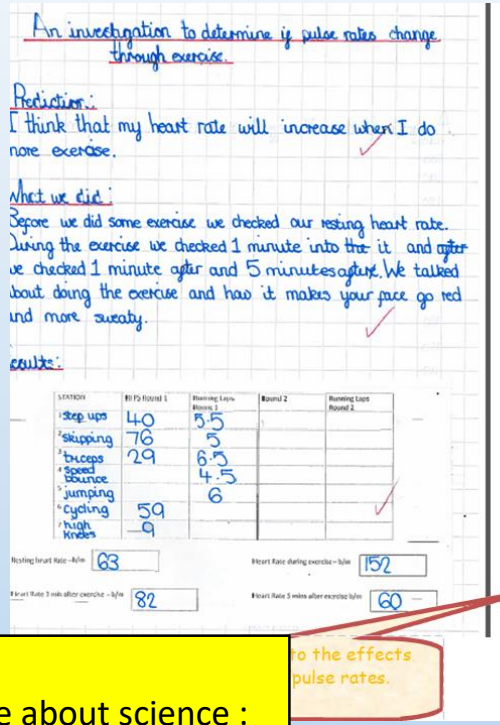
Crawford Village Primary School & Nursery

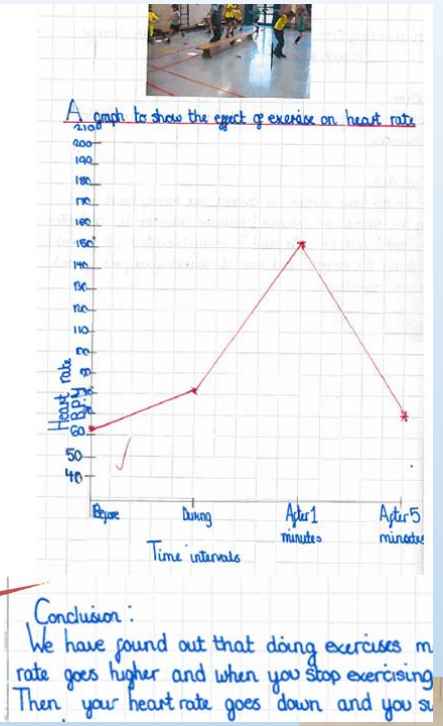
Class 3 Curriculum Map Y4 – Y6

Three-year rolling programme

Tree of Knowledge

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Cycle A 2019-20	Earthlings *Sci, Music, Art*	Survival *Sci, Art, Geog*	Inventors and Inventions *Hist, DT, Sci*	Passport to Europe *Geog, DT, Music, Art* *Discrete Science – material properties*	Oh! I Do Like To Be Beside The Seaside *DT, Hist, Art, Sci, Geog, Music Plus: Local Geog study)* *Discrete Science: Scientists & Inventors Y5*	
Cycle B 2020-21	A Kingdom United *Geog, Hist, Music* *Discrete Science: Scientists & Inventors Y4*	The Art of Food *Sci, Art*	Super Sleuth *Sci, History*	The Great Plague *Hist, Geog, Art* *Discrete Science - Sound*	Britten's Got Talent *Music, Sci, Art*	Hunted *DT, Sci Plus: Local history study*
Cycle C 2021-22	Heroes and Villains *Sci, DT Hist (WWII)*	Sparks Might Fly *Sci, DT, Music*	Food, Glorious Food *Geog, DT, Sci*	Water, Water Everywhere *Sci, Geog, Hist*	Amazon Adventure *Geog, Sci, Music, DT*	Faster, Higher Stronger *Hist, Sci, Art, Music*

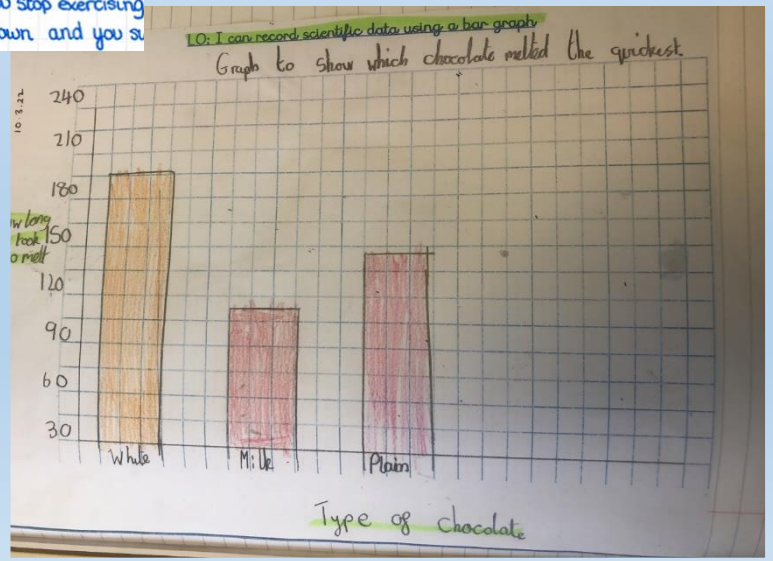




Linking science to maths through the use of data handling

Non-Fiction November

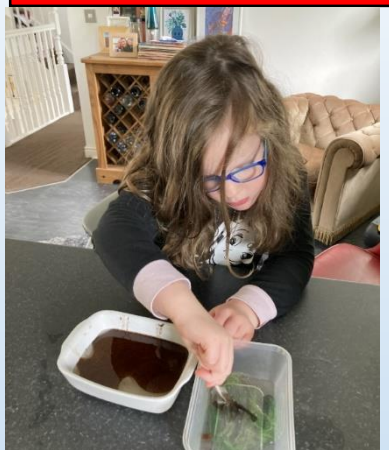
Children were encouraged to bring in their books from home about science : IMPACT- It developed children's own scientific research skills as they found information they were interested in and promoted a love of learning



WO B.
There is participation in some external initiatives, topical science events and family learning.

Eco Warriors!

We are so proud of two of our children who took time out of their weekend to help look after our countyside. They collected 4 bags of litter whilst out walking and couldn't believe how much rubbish they found. Well done! What a fabulous thing to have done!



Hi

For the bucket and spade homework - Olivia did some sand art and played on the beach for her assignment.

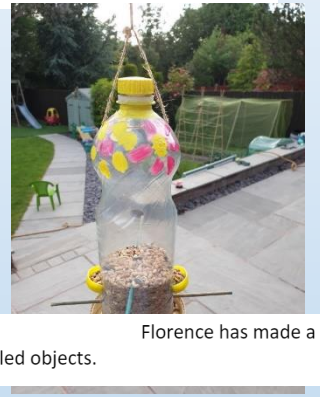
Thanks
Laura

Family Learning IMPACT: As you can see from the responses from parents, the tasks we have set over the school holidays have been very well received, encouraging the discussion of science at home.

i Mrs Mashiter

hope you had a good holiday. Skylar did the Oil Spill Challenge over the holidays so I am maling with the hotos of her doing this. She absolutely loved doing it which I hope the photos show.

hanks
wen



Florence has made a bird feeder using recycled objects.

WHOLE SCHOOL ENVIRONMENT PROJECT!

Complete any or all of these fun optional challenges with your families! Please send your photos to b.mashiter@upholandcrawfordvillage.lancs.sch.uk

STEAM
Science • Technology • Engineering • Arts • Mathematics

S — Question, experiment, test and observe

Yummy Yoghurt Makers!
In developing countries like Bangladesh, education is especially important. However, with no national provision, families have to pay to send their children to school. Making and selling yoghurt is one way that families can generate an income for school fees. Investigate how to make the tastiest yoghurt from milk. Did the different types of milk make different types of yoghurt? Which flavours work best?
Full instructions: https://practicalaction.org/schools/yummy-yoghurt-makers/

T — Process and connect information

What flora is around us?
Identifying a plant is of interest to all plant lovers, whether we are talking about houseplants, outdoor plants, or the ones you find on your walk. By knowing what we are looking at, we'll be able to identify the needs of particular plants and successfully care for them. However, there are so many species to identify so, with permission of your adults, why don't you download one of these free apps to learn more about plants?
~~PlantNet~~ ~~iNaturalist~~ ~~PlantSnap~~

E — Invent, evaluate and improve

Oil spill challenge!
Clean up an "oil" from a simulated oil spill disaster that includes feathers to represent marine life, to increase your understanding of an oil spill disaster and the environmental consequences.
Oil spill: container, vegetable oil (amount depends on the container, use a 1:4 oil to water ratio), cocoa powder: to mix with oil and make it look like crude oil, bird feathers. **Methods to clean up:** cotton balls, sponge, plastic spoons, washing up liquid, plastic cups to put soap and cotton balls in.

A — Explore and express

Can plastic waste become an element of art?
The problems related to the use (and abuse) of plastic are well known. While experts warn that, at this rate, by 2050 there will be more plastic than fish in the sea, some people have found a way to reuse the offending material in a very creative way. Indeed, better: making something beautiful out of it.
Create a sculpture completely out of recycled plastic! It could be a plant, an animal, a cartoon character or even something abstract.

M — Use tools and structures

Weather predictions!
Try to find three different weather forecasts for your area. Listen to weather reports on the radio, watch them on the television and read them in newspapers. Collect information for a week about the predicted temperatures and the predicted rainfall.
Keep a record of what the weather is actually like on the day and note whether it was different or similar to the predicted weather.
If a weather prediction was very different from the weather that you experienced in reality, explain why this could have happened.

Evidence of parents (A&E Consultant) visiting school

We would like to say a huge thank you to Alison Makin for coming into school to talk to the Year 3 and 4 children about broken bones as part of their PSHE lessons. The children enjoyed the visit immensely and had lots of fun practising their bandaging skills.

British Science Week in Class 3

Lesson: Science

Class: Class 3 **Year:** 2020 - 2021

Class 3 have had a fantastic time celebrating British Science Week. We started the week with an escape rooms activity, where we had to answer science questions which led us to a series of clues to unlock a mysterious safe in our classroom. We managed to crack it, and to our amazement, it was packed with treats!

We then partcipated in a Live Youtube session with Theeb the vet. We were shown how cows are looked after at the cattle farm, and learnt all about their nutritional and environmental needs. We then compared their heart rates, breaths per minute and eyes to our own. We have also been investigating light and space, creating their own periscopes and spectroscopes and creating videos to send to Nasa all about Space!

WO B.
There is participation in some external initiatives, topical science events and family learning.

Oil spill challenge
We watched a You Tube video with Sophia & Jenson before they began their experiment, so they would better understand the environmental issue. Sophia recognized how difficult it was to clean the feathers after they'd been in the oil and the effect this would have on marine life. It was a great way to increase their understanding.

Science Selfie – quote from parent:
"Zac wanted to do the Coke and mentos experiment. He gave me a detailed account of exactly what was happening in terms of the chemical reactions taking place!!"

Family Learning IMPACT: Our Science Selfie Competition prompted lots more discussion and promoted science in a positive and engaging way

Plastic art
Sophia has made some beautiful flowers using recycled plastic and bottle tops (inspired by the lovely display outside school). She really enjoyed doing this and they look lovely in our play area. We plan to make lots more for the garden.

Science Selfie – quote from parent:
"Mia has been making salt crystals. She made up a salt solution and has watched as the water has evaporated and the crystals have formed."

Science Selfie – quote from parent:
"James was able to talk about the colour moving up the stems and used the term capillary action"