Impact

The science policy was old and had not been updated for a while so did not reflect current practice or ambition.

"I like doing experiments because I can work with my friends and try it out for myself." (N, J3 pupil)

Pupil and staff voice activities identified what the school thought was important and developed a rationale.

Now there is a clear statement of intent which is shared by all and is visible to the school community.



"Pupils in J5 & 6 ran a half-term unit debating the issue of plastics in the environment."

"At Eco Club, we collect old pens, batteries, broken plastic toys and old tech items to be recycled. It's important to look after the school environment and our planet." (B, J4 pupil)

Pupils actively engaged with current issues.



SCIENCE AT PITSFORD JUNIORS

Principles of Teaching and Learning

At Pitsford Junior School, we believe that scientific investigation is one of the most powerful ways to learn, developing curiosity and perseverance, as well as challenging what we know about the world. We aim to make science as practical as possible, linking it to real life contexts and giving meaning to our learning.

Relevant and engaging

Real-life opportunities for learning are planned in all year groups. Children learn through investigations and experiments which spark their interest

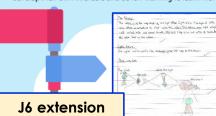
Link making

By making science relevant, children make links between their scientific knowledge and everyday life. We ensure that current affairs and scientific thinking is woven into our

Challenging

task

All children are challenged through guestioning and content Science lessons are ambitious for all and develop curiosity about natural phenomena in all children, allowing them to develop their own interests and be left wanting to learn more.



Vocabulary rich

Active learning

We encourage children to think as scientists, make their own

observations and draw conclusions.

We encourage the use of high-level scientific vocabulary when talking and writing about our world.

Key words are now on display

Cross-curricular

We recognise the link between science and all other subjects. Our lessons include a variety of extended writing, data analysis and other cross-curricular links.

Molar

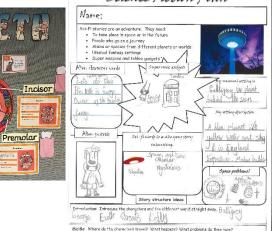
"The most important part of the EYFS is giving the children the opportunity to explore, investigate and experiment." (EYFS class teacher giving rationale on FB video)







Science Fiction Plan



Links to other subjects

What happens in the end? George designs threats and like the a right

No science subject leader before

PSQM and few opportunities for

CPD linked to the subject.

Pre-PSQM

During PSQM

Impact

Subject leader role created to empower and enable staff to support teaching and learning effectively.

Subject leader has now accessed CPD to strengthen the science offer in the school.







Use of social media raises the profile of science in the school community



"The evolution CPD has given me confidence in a unit I have not taught before." (Science SL)

Rachelle Heard

Pitsford School

Outdoor Science (15/04/2022)

SL is making use of social media to interact with the primary science community and find out about CPD and events online



Skills bubbles and vision on display around the school.



Explorify

Planning

Support:

Evolution &

Inheritance



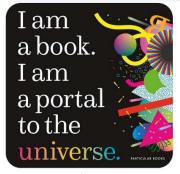
Pupils created a science wishlist to update the school library

with greater frequency - pupil interest is higher.

Weekly SL time following taught lesson

e	SL time	Science	E	English	House
	J6 RE	SENCo	А	SENCo	Achievement assembly
	J6 RE	SENCo	A	SENCo	Achievement H assembly ass

My class love this book, it just won the RoyalSociety Young People's Book Prize



Just now Like Reply



ASE Annual Conference 2022 Online

> SL accessed high quality and relevant CPD



'A Good Read Guaranteed' Sustainability Teach Meet

Creating time in a busy week to seek out new resources and ideas

Subject Leadership: C

Pre-PSQN

During PSQM

Impact

Lim monitorial monitorial data the state of the state of

Limited opportunities for science monitoring before PSQM as no SL in place.

Regular learning walks during the PSQM process to focus on learning environments.



Classroom
displays clearly
show the science
learning taking
place each term,
and also
evidence links
made with other
subjects, e.g. art
and geography.



'The Street Beneath My Feet'
J5: Spring Term 1 2022

Science

Objectives

- Compare and group together different kinds of rocks on the basis of the appearance and simple physical properties.
 Describe in simple terms how fossils are formed when things that have
- lived are trapped within rock.
- Recognise that soils are made from rocks and organic matter.
- Understand fossils in relation to the timeline.
- Become familiar with terms such as era, epoch, Palaeozoic, Mesozoi and Cenozoic
- Plan scientific enquiries to answer questions
- Take measurements using range of scientific equipment
- Identify scientific evidence used to support/refute arguments

Suggested activities:

- Observational skills: handling and examining rocks and fossils
 Carry out investigations on selection of rocks: test for hardness, sorting, observation and drawing, test for porosity
- To classify rocks
- Learn how the three types of rock (igneous, sedimentary and metamorphic) are formed and begin to identify rocks from properties
- Draw cartoon strip to show how fossils are formed
- Rock star factfiles
- Soil investigation to learn about the components of soil

Head/SL now includes a some information on science/PSQM in termly report.

Planning is monitored more frequently to ensure coverage/ progression.



Governors
were not aware
of some of the
curriculum
developments.

Governors are better informed and have been able to visit since Covid restrictions lifted.

The school has embarked on the Primary Science Quality Mark programme which provides professional development and results in an improvement in the way in which science is strategically planned and taught across the whole school. Alongside our Green Flag award for the Eco Schools scheme, this will help to celebrate and promote excellent practice taking place in school and, I hope, add to our profile when marketing the Junior School.

RL Heard - 8.12.21.



Pitsford School - Into the Woods



"The school is surrounded by forest, fields and gardens that we can use so that all of our lessons can go outside, so that everything is practical and hands-on, and the children learn by real and relevant experiences."

(Head/Science SL giving rationale for outdoor learning on FB video)

The PSQM Vision is for primary schools across the UK to evaluate, strengthen and celebrate their science provision.

Created a PSQM page on the Firefly VLE to share progress, learning and resources with staff, parents and pupils

PSQM Aims

- To raise the profile of science in primary schools.
- To provide schools with a framework and professional support for developing science leadership, teaching and learning.
- To celebrate excellence in primary science.
- To work with existing and facilitate new networks across the UK and wider to provide local support for primary science.
- To assemble and make accessible to the wider science education community a rich data base of current practice in primary science

Teaching: A

Pre-PSQM

During PSQM

Impact

Staff time constraints and duties afterschool made it more challenging to access CPD, though staff were willing. Have explored different models of professional development, e.g. Zoom CPD, regular emails and sharing resources.

Next term K and S will be covering the topic of Marvellous Minibeasts and I wondered if we could buy some baby caterpillars that we can look after? Also was thinking about a trip to Stratford upon Avon butterfly farm park?

is also looking at lifecycles so we could go together?

Thank you

Staff have accessed training and new ideas on topics they have not accessed previously/recently, trying new ideas and approaches. They email the SL asking for new resources and approval for science visits.



We found an image of an animal you might find on safari for our page.

Different teachers accessed

training together.

Leads to discussion on teaching and progression in a topic.

PRIMARY SCIENCE TEACHING TRUST **REGIONAL MENTOR**

Light for year 3 and 6

Sarah Eames

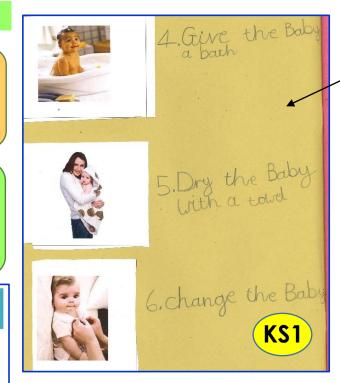
East Midlands

"The Big Questions are my favourite task as we always have a real discussion on it and everyone can share their viewpoint." (M, J6 pupil)

Primary Webinar: Physical Computing in KS1

Start date 13 Oct 21 Duration 2 Hours Location Virtual, Adobe Connect Remote,

KS1 research using secondary sources



Baby R came to visit J1 and



Limited opportunities for questioning and discussion in science lessons.

Explorify was introduced as a resource to inspire 'Science Talk'.

Improvements noted in questioning, with deeper thinking and reasoning skills.



What if all humans looked the same?



J6

I think people would instantly try and make themselves different. Making different haistyles, facepaint, Extremi plastic surgery Wi would have to have a solid identification system. Monarchy would be pointless. Everyone would be swapping out for the king/auren! Ciender would be meaningless. We would have one lifetime to master cloning and advance tremering.

Teaching: B

Work in books showed fewer opportunities for hands-on learning; this was echoed by Pupil Voice comments.

Planning has focused on integrating more practical activities to allow pupils to lead their own learning.

Pupil engagement is higher as they & enjoy exploring through practical investigation and this enables more teamwork, discussion and improved retention of taught concepts.



A range of approaches

During our science topic on the circulatory system, J6 class have shown a somewhat ghoulish fascination with blood! We decided to end our work #EYFS style with #MessyScience We researched components of blood and used household items to help us remember! #PriSci



Pre-PSQM

During PSQM

Impact

Pitsford Junior School: Science - Curriculum Map for KS1 and KS2

•				
	Autumn 1	Autumn 2	Spring 1	Spr
Enrichment opportunities		Outdoor Classroom Day	Atomic Science Club	Fairtrade British Sc
	Working scientifically in			
		pils should be taught to use		
		estions and recognising that	they can be answered in	different ways
		, using simple equipment		
	 performing simple 			
J1/2	 identifying and class 			
		vations and ideas to sugges		
Year A	 gathering and red 	cording data to help in answ		30
rear A	Seasonal Changes		Animals including	Animals inc

Updated whole-school curriculum map for Year 1 upwards – added enrichment/visits to plan



Class teachers updated planning to include different approaches and cross-curricular links.

linked to Creative Curriculum themes.



"I prefer when I can learn by doing the task myself because I can really see what happens." (G, J5)











Science

humans

- to know that micro-organisms are often too small to be seen
- to understand that micro-organisms can be both beneficial and harmful
- to understand that micro-organisms cause many diseases
- introduce life cycles

Suggested activities:

- Link to current pandemic situation and importance of hand hygiene.
- Discuss ways of stopping spread of germs
- Investigate superstitions link to Ancient Egypt topic.
- Discuss why food rots; look for leaf mould/decay
- Find best conditions in which to grow mould (use tomatoes and bread)
- Investigate yeast: used in beer and bread: find best conditions for growth. Yeast balloons investigation.

Science

- Identify and name a variety of common animals including fish, amphibians, reptiles, birds and
- Identify and name a variety of common animals that are
- Describe and compare the structure of a variety of common animals.
- Use first-hand experience and simple information sources to
- To identify different common nimals and their babies.
- To find out what all baby animals need to survive

- Draw and label animals and their babies
- Farm animals and their babies ICT game
- Animal babies collage
- Describe family pets.
- Find out about the RSPCA video
- Carnivore /herbivore/ omnivore Venn diagram and definitions.
- · Make simple facts sheet explaining difference between mammals, reptiles, amphibians and birds





More investigations



Teaching: B

Reebaps investigation

We created imaginary creatures called Reebops and made the male and gemale parent. We then constructed an aggspring with some inherited characteristics.





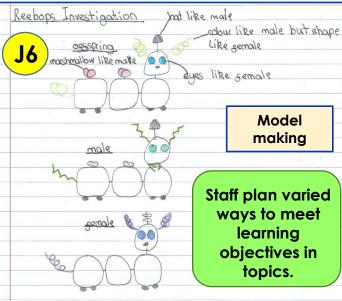








used a magnifying glass to look closely at the spiders and how they moved.



Pre-PSQM

During PSQM

Impact





"When you work in the Forest you are in a team and that means you can share your ideas more easily. You can use forest things for the investigation." (F, J4 pupil)





Learning about rivers off-site

As part of our where Do I live topic we have been looking at where animals live. We now know these are called habitats and that each animal lives in a habitat which caters for their needs. The children had to sort the animals into the correct habitats as a group. They were using good thinking skills and questioning each other throughout to get the right habitats. At the end each child explained why the animals in the habitat in front of them were in that habitat to the rest of the group.

Spider Hunting! EYFS J's learning profile assessment

phases to broaden experience; J5 teacher leading J1/2 lesson and vice-versa.

Staff respond to science in reallife situations and share these with the children.

Team-teaching and swapping

noticed that some baby spiders were living and hatching from their eggs sac that had been made on some plants outside.

Sharing science with parents via Tapestry

Teaching: C

Science resources were stored in the back of the music cupboard! Not easily accessible and no list of available equipment.

New chemistry resources in use

Pre-PSQM

During PSQM





After reading Funny Bones, the children were provided with black paper and white paint. They were asked to paint their own animal







Everyday resources for practicals and 'kitchen' science' now stored in the art room for easy access and regular use in a more suitable room.

"I read all about Frances Westall from South Africa and I had not heard about her before." (S, J5 pupil)

Planning for more practical new resources and develop progression of skills.

skeletons. work means a chance to use Equipment is in use/replaced more frequently. We have an inventory spreadsheet.



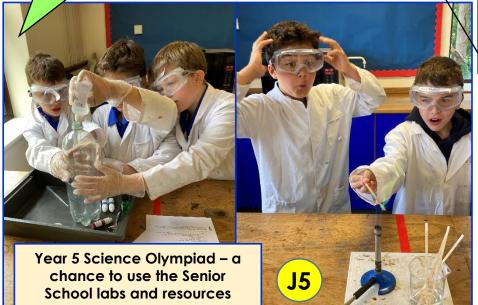
Impact

Using the outdoor environment for learning in drama – the grounds are a key resource!

Rock samples Soil samples **Digital Inventory** Light Blackout material Light Light Range of materials - transparent, translucent and opaque, reflective and non-reflective Range of objects - transparent, translucent and Forces and magnets Clockwork tovs Forces and magnets Spinners Forces and magnets Forces and magnets Different types of magnets Forces and magnets Range of magnetic and non-magnetic materials Living things and their habitats Pots for collecting minibeasts Living things and their habitats Pond dipping net

Science Ambassadors promote new library books and children take out books on topics that were not available before





Learning: A

EYFS

Sensory experiences

Pre-PSQM

During PSQM

Lots of tasks

were worksheet based or factual copying.

Impact

"The lemon tastes fizzy!" (L, EYFS child)





















Which biscuit do you think would be the offspring of the 2 parent biscuits? Explain your choice.

More thought to progression of vocabulary and discussion.

Pupils can talk about their understanding using appropriate vocabulary for their age, and write with greater confidence.

J6

I think It could be either Chox Digestive or Choc Chip. Choc digestive has she schape of parent I and the colour of parent 2. Choc Chip would be leaving towards parent 1 although CharChip some bourbon freckles! Good suggestions!

* Good effort at putting the fossils back together

Early Science talk is developed

through play-based learning

PitsfordJuniorSchool @PitsfordJunior - Feb 1

Developing our understanding of shadows this afternoon! Creating shadows with different materials, investigating size, colours and light

Trying out shadow puppet task from staff CPD **J6**

EYFS cook every week – sensory science and discussion



Postcard to a Scientist pupils are keen to find out more and explore a topic further

PS Brix Wort

From hobby to necessity

family stall has been essential

when he fell off a Cliff whilst

hunting for fossils leaving marry

A few months ago, down on the beach in Lyme Regis Mary found a very large slab of rock sticking out

of the cliff face. Being a fossil

hunter, she emmedieatley called some quarry men over to help her

now after many months of hard

inside, it's the skeleton of an ichthyosaur! Not that she knew it at

carry it back to her workshop and

work she has finally found what's

and her mother and brother in charge of the stall. This was their only source of income until Mary's latest good fortune!

Amazing discovery!

because sadly Mr Anning died

Until recently, selling fossils at the

THE PEOPLE'S FAVOURITE NEWSPAPER

ICHTHYOSAUR FOUND BY MARY ANNING

Ichthyosaur skeleton - large skeleton of prehistoric marine

Lightning strikes twice! Miracle girl

unearths amazing discovery and

wows London Scientists.

heast - found in cliffs of Lyme Regis

Adhoc

assessment in

the EYFS

Ongoing assessment

through observation

and Tapestry.

"I can pick it up

with the magnet!"

(T, EYFS)

Assessing prior knowledge Can you name the plants?



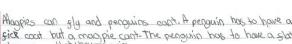
The top right and bottom right are more colourful. On the lest the coctus is green and so is the spider plant. All the plants can



How are they the same? How are they different?

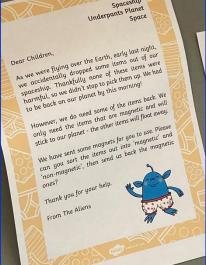
Why does a cactus have spines?

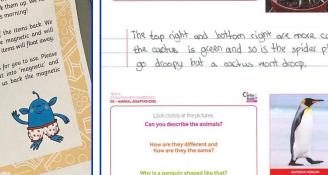




Underpants Planet As we were Jujing over the Earth, early last hight, we accidentally dropped some items out of our we accidentally gropped some trens out of our spaceship. Thankfully none of these items were spaceship. Thankfully none of these items were spacesnip. Hankfully none of these items were harmful, so we didn't stop to pick them up. We had namigat, so we awre sup to pick aren up. to be back on our planet by this morning! do need some of the items back. We nowever, we do need some of the trems back. We only need the items that are magnetic and will only need the items that are magnetic and will stick to our planet - the other items will float away. WE HAVE SENT SOME HUGGES JOY YOU TO USE MODE OR AND THE HUGGES JOY YOU TO USE MODE OR AND THE HUGGES JOY YOU TO USE MODE AND THE HUGGES JOY HOU TO USE AND THE HUGGES JOY HUGGES

EYFS using English texts to support early science





Maggies can fly and perquins capt. A penguin has to have a sick coat but a man pie cant. The penguin has to have a state stomach so that they sad swim.

Pupils are asked to show what they know already about key vocabulary and can then add new learning as they go through the topic.

Adapting to the situation. If / fur. If it is hot, shed for. Wooly mammoche evolved into india elephants. They Inheriting is taking something from the past. You can Inherit D.N.A.

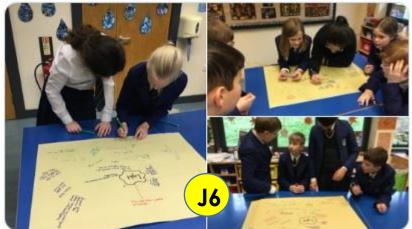
'Flat Chat' is used as a pretopic approach to assess prior learning. This idea came from Geog/Science CPD.

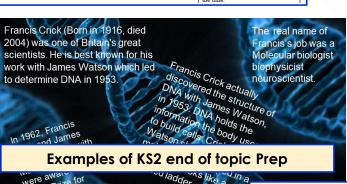


PitsfordJuniorSchool @PitsfordJunior - Jan 11

What do we know about light? J6 are busy using #FlatChat to share their knowledge on the new science topic. #PriSci #ScienceTalk







things changing, To evave. Monkeys evolved into humans.

Learning: C

Pre-PSQM

During PSQM

Impact

Thursday 7 Oct 2021 16:40



Understanding of the world

- Rice crispy dinosaur eggs
- Chocolate cornflakes dinosaur nests
- Dinosaur Names PPT
- What do dinosaurs eat?
- Salt dough fossils
- Fizzing dinosaur egg experiment
- Rock and stones walk
- IWB-painting dinosaurs
- Create a food bowl for Herbivore Dinosaurs (Mud Kitchen)

EYFS planning taking dinosaur learning outside

- the dinosaur w/s
- Dinosaur experiments
- dinosaurs
- Magnetic dinosaurs

Dinosaur shadows Making volcanoes

The grounds were not being exploited enough as a resource in their own right.

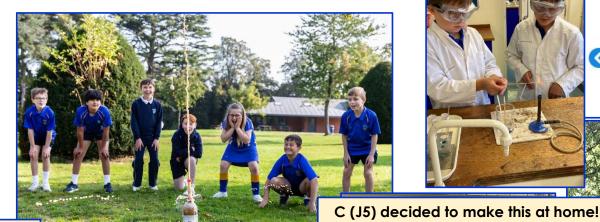
Taking learning out of the classroom to make the most of the space and develop problemsoliving / decision making skills.

Learning outside the classroom has led to a deeper understanding of challenging concepts, as the experience outside can be more memorable. Practical work (both inside and out) affords the chance for pupils to recall and retrieve what they have learnt more effectively.

We have been learning all about the Three Little Pigs with a link to houses and our A Street Through Time. We have retold the story with puppets, talked about the characters and have written an alternative version of our own.

Today we conducted a scientific challenge! We had to use what we knew about properties of materials and the story to build a house which would withstand the huffing and puffing of the Big Bad Wolf (a hairdryer!)

Have a look at how we got on:





Wow!

Visits and visitors are planned into the class curriculum maps.

Virtual visit to the Horniman Museum: Rutland Icthyosaur Class assembly - space British Science Week Mars Day - 14th March Visit to the National Space Centre – planetarium and 'Life in space' workshop



"When you learn outside there is more freedom and you can take more risks." (S, J6 pupil)

K\$1 floorbook page for World Ocean Day 2022



"My favourite part of the school is the woods. It's a really nice place. I love how you have the freedom to do what you want and different activities that we can choose from." (W and A, J6 pupils)



25. Are you a scientist?

25. Are you a scientist?

No

Yes because i am learning and discovering all the time.

Children take part in optional activities like competitions. Encouraging them to recognise they are scientists!

Correct answer: Yes

Feedback:

25. Are you a scientist?

I respectfully disagree. You always make interesting predictions and careful observations in our lessons, so I think that makes you a scientist!

Yes I like building lego!





We ran events to encourage the children to get involved in clubs and extra-curricular activities.

Science activities restricted to lessons in school time.

The youngest children are engaged and want to try things at home. Pictured H, aged 3 from Acorns Class.



"The children have Forest School where we can engage them in outdoor activities. I think it's quite an inspiring environment." (J6 class teacher)

Student score	97.89
Questions answered	15
% correct answers	100%
Total time spent	6m 32s



Space Prep

by J5

Class teachers can see their class stats/ parents can see their child's

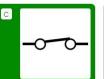


KS2 can use Atom Learning to assess factual knowledge; e.g. J6 electricity unit

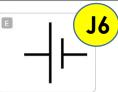
Ursula wants to draw a diagram of the circuit she has just made, but she cannot remember the symbol for a closed switch. Can you help her select the correct symbol? Choose one answer.











Wider Opportunities: A PitsfordJuniorSchool @PitsfordJunior - Jan 28 We're having a lot of fun in the dinosaur swamp this morning! 🔓 🦜 #EYFS #childledlearning #handson #exploring

During PSQM

Impact

Last week J1 and J2 made bread. We have been learning all about the Great Fire of London and loved having the opportunity to bake our own bread just like the baker would have in Pudding Lane. We also used it as an opportunity to further our science knowledge about changing materials as we looked at how cooking alters the ingredients. We have moved on to use these to create instructions this week too! What a lot of learning from one fun







MATHS

HISTORY

Pitsford School @Pitsford_School · Dec 7, How does J3 put a Roman chariot through its paces??? We test its strength with a remote-controlled monster truck, in a frosty courtyard, around a tricky, winding track! #needforspeed #crashtesting #romanengineering



EYFS

As well as lots of indoor learning, we have been taking our learning outdoors. We have been writing with chalks, planting bulbs ready for Spring and been into the forest to make our own Stickman puppets.

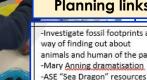












-Investigate fossil footprints as a

way of finding out about animals and human of the past. -Mary Anning dramatisation

Martin Luther King Jr Day

travel -Create space exploration

-"Hidden Figures"

-"A Galaxy of her own"

Pupils are able to see and understand links between science and other areas of the curriculum. Creative Curriculum units have been strengthened by making better links.





PitsfordJuniorSchool @PitsfordJunior · Jan 12

Fabulous fossils! J5 topic launch day, researching and sketching. Observing closely and creating our new class display.



Busy in the art room this morning - coming to the end of our unit on Fossils. J5 children have been creating monoprints and ammonite collages inspired by @DarrellWakelam



Wider Opportunities: A

Pre-PSQM

During PSQM

Impact

EYFS

KS1

Hamerton Zoo

Relative - 23 Feb

Parent Tapestry reaction

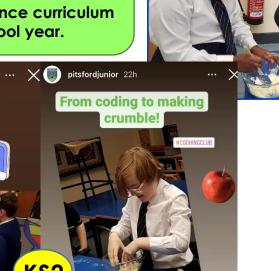
Amazing:) that made me smile!!!

Most children in the school have had the opportunity to go on an educational visit that has linked with an aspect of the science curriculum during the school year.

KS2

pitsfordjunior 22h

#HOUROFCODE







'Spring Up!' Day – nature day for Juniors & Seniors

Pitsford School @Pitsford_School · Oct 15
The old Victorian chemist. #historyalive #pitsfordschool





Nausicaa.

Bolougne-

sur-mer

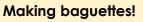
Temperature Formula Investigation skills – trial and error (debugging)

Formula Statistics Roman toys – energy, friction

Temperature Formula Statistics Statistics Temperature Formula St

Cross-curricular links document

J6





Wider Opportunities: B

Parent

News

During PSQM

Impact

Parents of children in infant year groups requested Science and STEM clubs for the younger children.

EYFS

KS1



Eco Flaa was awarded in 2020.

Eco Club is a

regular part of

school life.

Pupils actively

engage with the

ten topics.



British Science Week is now

part of the curriculum with investigation boxes provided.

Food for healthy growth

"Eco Club helps us all care for the whole school." (C, J6)

Embedding Outdoor Classroom Day into the curriculum.



PLEDGED 1

Making the most of the school grounds to inspire and motivate pupils.

Pitsford School @Pitsford School · Nov 1





Paper aeroplane challenge!



A beautiful autumnal day, out sketching and looking for signs of seasonal change. Spotted an array of fabulous fungi! Great biodiversity in the school







British Scienc 2 Week

= 2022

Frozen eggs

Investigations now take place at Crèche to involve EYFS and KS1.

Building the foundations for 'working scientifically' in the infant classes.

Developing 'science talk' early on.



- Discuss how poor diet impacted on the health of Tudor Sailors.
- improved the lives of sailors.



Recycling station – Juniors do batteries, Seniors do pens!



CREST and STEM clubs were introduced as part of the activity programme.

Now all year groups have the opportunity to join a Science club during the academic year.



- Create healthy menus.
- Make ships' biscuits and discuss their
- Learn about how the research of James Lind

Wider Opportunities: B

During PSQM

Impact

Lockdown made it more challenging to share science events and learning with parents and wider community.

Class

assemblies



Zoom sessions for homelearners helped to keep children/families involved -'blended' learning.



EYFS Science at home competition

'I am a book. I am a portal to the universe.' Our





Opportunities for cross-phase activities, during and after school.

Using social media to seek out events that will enhance the curriculum and raise the profile of science.

verdict: Wow! A creative, thought-provoking and inspiring book that makes you want to keep reading!' (KS2 Panel Quote) Results from Pitsford School



What would

Mars Day 2022



J5

Parents see science learning first-hand at events and can get involved.

"STEM club is relaxed, you can make a mess and have fun trying things out." (K, J6)

Great Science Share is now part of the curriculum and children are encouraged to pose questions.