Subject leader impact



Presentation to staff 2021 Jen Serle



Science intent

"Enabling life in all its fullness"

"I came that you may have life, life in all its fullness" (John10:10)

Our **Core Christian values** for our school are: *Perseverance, Creativity, Trust and Friendship*.



Science intent

The national curriculum for science aims to ensure that all pupils...

 develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics.

- develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them.
- are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

Science on the website Thank you Sarah!



Knowledge and Skills progression maps

Science Subject Leader Impact Form EYFS skills and progression map Yr 1 skills and progression map Yr 2 skills and progression map Yr 3 skills and progression map Yr 4 skills and progression map Yr 5 skills and progression map Yr 6 skills and progression map



Policy:

AK Science Policy

Useful Links for Parents:

If you and your child want to try out some exciting experiments at home, the following websites may be useful.

https://sciencebob.com/

https://www.jamesdysonfoundation.co.uk/resources/challenge-cards.html

https://www.stem.org.uk/resources/collection/477694/starters-science-suitablehome-learning

Pupil Voice:



Photo's and examples of work: to be updated shortly

What do AK children say about learning Science?



Videos and slides help us in our lessons. So does **tigtag**



I love experiments

It's not all just writing, we go outside lots in Science.

To help us improve we do the star challenge.

What does 2020 report data say about Science attainment at AK?



SCIENCE (2020 REPORTS)						
Y 1 - 6 (185)	Total	%				
BARE	14	8%				
ARE	148	80%				
GD	23	12%				

Note: Assessment of Mastery in Science shown as GD.

SCIENCE (2020 REPORTS)						
Total	7.					
9	36%					
15	60%					
1	4%					
	Total 9					

SCIENCE (2020 REPORTS)

PPG (18)	Total	%	
BARE	2	11%	
ARE	14	78%	
GD	2	11%	

Having observed, questioned and been curious about Science at AK I decided my **intent** was...



To raise the standard of Science teaching across the school and increase the number of children achieving mastery in science.



Starting with the **implementation** of a revamped whole school curriculum map to ensure all elements of the National Curriculum are taught with appropriate progression.



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Followed by the **implementation** of year group specific skills and progression maps.



Autumn 1 Plants Seasonal change	Progra Autumn 2 Seasonal change	mme of study, Spring 1 Animals including humans Seasonal change	skills and vocal Spring 2 Everyday materials Seasonal change	bulary Summer 1 Plants Seasonal change	Summer 2 Animals including humans Seasonal change	including humans	Key objectives Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals Identify and name a variety of common animals that are carnivores, herbivores and omnivores Describe and compare the structure of a variety of common animals Identify and name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	Specific skills Pupils might work scientifically by: using their observations to compare and contrast animals at first hand or through videos and photographs, describing how they identify and group them; grouping animals according to what they eat; and using their senses to compare different textures, sounds and smells.	Vocabulary common animals fish amphibians, reptiles birds mammals pets carnivores meat cat dog lion tiger fox shark killer whale eagle hawk snake herbivores plants cow hamster guinea pig tortoise omnivores meat and plants badger human bear chickens hear neck arms elbows legs knees face ears eyes hair mouth teeth
scientific metho programme of s asking sin observin performi identifyin using the	and 2, pupils shoul ds, processes and	skills through the ognising that they can be equipment as to suggest answers t	teaching of the me answered in differen	nt ways question observing classify so diagram	answer observe. g equipment identify ort group record chart map data compare describe biology	Animals	Stories <u>Teaching science through stories</u> <u>STEM</u> <u>story-links-list.pdf</u> <u>Book Lists for Primary Science</u> <u>Topics (booksfortopics.com)</u>	Famous names/inventions David Attenborough Steve Backshall Chris Packham Joan Proctor (a herpetologist who designed London Zoo's reptile house) Jane Goodall – the scientist and conservationist who is famous for her work with chimpanzees. Evelyn Glennie – hearing impaired percussionist Stevie Wonder – blind singer songwriter	Job titles 01 stem-careers-by-topic-1.pdf

And most recently the introduction of the use of knowledge mats to give staff and children the key points of knowledge and vocabulary needed for their science topic.



Subject Sp	ecific Vocabulary	Interesting Book	Sticky Knowledge
fish	A fish is a scaly skinned creature with a spine that swims in water	Bog Baby	about animals
amphibians	and breathes using gils. All amphibians begin their life in	Jog Dasy	The blue whale can produce the loudest sound of any animal.
ampinorano	water with gils and tails. Examples are frogs and newts.		Horses and cows sleep while
reptiles	Are animals that are cold-		standing up.
	blooded. Most lay eggs and their skin is covered with hard, dry scales	Jeanne Willia - Gwen Willward	Giant Arctic jellyfish have tentacles that can reach over 36 metres in
birds	Birds have feathers and wings.	No. 20 - 20	length.
	They lay eggs and are warm- blooded animals.	Wild Animals	 Tigers can grow up to a length of 3 metres and weigh up to 300
mammals	Mammals are also warm blooded animals. They breath air		kilograms when fully developed.
	and have a backbone.	See States	There are about 400 million+ dogs in
carnivore	A carnivore is a meat-eating animal that gets its food from killing other animals.	AN	the entire world. The average life of a dog depending on the breed can vary from 10 to 14 years.
herbivore	A herbivore does not eat food and they eat plants.	AD A	Dolphins use whistling, clicking and other sounds to communicate with
omnivore	An omnivore eats plants and meat.		each other.
tame	Domesticated animals that are not dangerous to or frightened of humans.	1 Shiel	Camels can survive up to six months without water or food due to the fatty tissues stored in their humps.
wild	Living in the natural environment and not belonging to humans.	A R	The cheetah is the fastest animal to roam the earth with top speeds of
nocturnal	Animals that tend to be awake during the night time.	- 1 - 1 - E	113 km per hour.

Impact

From regular monitoring of books I have seen that the curriculum map is being followed. Where topics have been missed due to Covid lockdown, steps have been taken by staff to address this.

Knowledge mats are being trialled this term by all classes – but in different ways. We will reflect on the best way to use them.

The annual Science week went ahead but timing was chosen by staff and event was much lower key than normal. Focus was for children to experience some WOW science activities.





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Science week activities EYFS and KS1







Science week activities KS2







Next steps

- Enhance the provision of learning about, and celebrating 'real life' scientists and their work with an emphasis on diversity. (starting with display)
- Introduce clear guidance on the 'working scientifically' skills, and more importantly, the progression of those skills.
- Ensure appropriate resources are available to enable staff to facilitate the highest standard of learning across the school.





Progression in working scientifically skills

NB - The National Curriculum statements in italics in these tables indicate that they feature more than once.

Year 1 & 2	Year 3 & 4	Year 5 & 6						
Asking questions and recognising that they can be answered in different ways								
Asking simple questions and recognising that they can be answered in different ways	Asking relevant questions and using different types of scientific enquiries to answer them	Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary						
 While exploring the world, the children develop their ability to ask questions (such as what something is, how things are similar and different, the ways things work, which alternative is better, how things change and how they happen). Where appropriate, they answer these questions. The children answer questions developed with the teacher often through a scenario. The children are involved in planning how to use resources provided to answer the questions using different types of enquiry, helping them to recognise that there are different ways in which questions can be answered. 	 The children consider their prior knowledge when asking questions. They independently use a range of question stems. Where appropriate, they answer these questions. The children answer questions posed by the teacher. Given a range of resources, the children decide for themselves how to gather evidence to answer the question. They recognise when secondary sources can be used to answer questions that cannot be answered through practical work. They identify the type of enquiry that they have chosen to answer their question. 	 Children independently ask scientific questions. This may be stimulated by a scientific experience or involve asking further questions based on their developed understanding following an enquiry. Given a wide range of resources the children decide for themselves how to gather evidence to answer a scientific question. They choose a type of enquiry to carry out and justify their choice. They recognise how secondary sources can be used to answer questions that cannot be answered through practical work. 						