

# SUBJECT LEADER IMPACT REPORT SCIENCE

Together Everyone Achieves More

### INTENT



#### Our Curriculum intent at Corsham Regis is embedded in the working scientifically skills and the subject specific knowledge teach the children across both Key Stages.

#### How to communicate using appropriate vocabulary

In their science lessons, the children are encouraged to use technical scientific vocabulary. This high-quality vocabulary is modelled and explained by the teacher and then drip fed into the children's language. During science lessons children are given opportunities to talk about their learning, in pairs, groups or individually. Open-ended questioning and language scaffolds are used to challenge the children to think more critically and develop their command of English. Scientific vocab is displayed through topic boards and is provided for parents on the topic webs and the 'chatter topics' online. It might also be taught explicitly through Reading lessons to ensure children are confident in using the new vocabulary.

#### About Corsham and the local area

Where possible, teachers embed the children's learning through the different cross curricular topics. Examples might include learning about the geology, flora and fauna of their local area or observing minibeasts in the local habitats around school. Links are also made with other subjects such as DT. For example, while learning about the SS Great Britain children explored their local environment while also developing scientific, technological and historical knowledge.

#### Through experience inside and beyond the classroom

Children are encouraged to learn outside, particularly in FS2 and Year 1. The school allotment is used to support children's knowledge and understanding of plants and nature. They also develop an interest in the natural world through outdoor learning in FS2 which helps them with the jump to the National Curriculum objectives. School trips that link with the science topic are arranged when possible and when appropriate to enrich the children's learning.

#### New knowledge and understanding appropriate to their age

The children are taught the National Curriculum appropriate to their age and key stage. The rolling curriculum programme ensures that Milestones 1, 2 and 3 from Chris Quigley's Essentials resource are taught on an alternating basis over Years A and B. Working Scientifically skills are taught alongside each science topic and are threaded through the children's learning.

Topics are planned so that there is a clear progression in the level of challenge and depth as children get older. For example, Animals and Habitats in KS1 through to Evolution and Inheritance in UKS2.

#### How to keep themselves safe

When using the internet to access science resources, children are encouraged to search safely and use child friendly sites such as Swiggle. During lessons, children have access to a wide range of resources to support their learning and are taught to use equipment safely. When conducting scientific experiments, children are taught the importance of using whatever resources are provided safely from an early age. Staff are vigilant in preparing risk assessments prior to any out of the ordinary or off-site learning.



Science	
ELGs	Aims
<b>ELG:</b> Understand the world Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.	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.
In the EYFS children use a range of 'Characteristics of Effective Learning' in their independent learning. These can be seen as complementing 'Working Scientifically'. Playing and exploring – engagement Finding out and exploring; playing with what they know; being willing to 'have a go' Active learning – motivation Being involved and concentrating; keeping trying; enjoying achieving what they set out to do Creating and thinking critically – thinking Having their own ideas; making links; choosing ways to do things	Essential skills Working scientifically' is essential. We focus on the key features of scientific enquiry, so that pupils learn to use a variety of approaches to answer relevant scientific questions. These types of scientific enquiry should include: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources. Pupils should seek answers to questions through collecting, analysing and presenting data.

### **PROGRESSION MAPPING**

Learning Objectives	End of Year 2	End of Year 4	End of Year 6
To work scientifically	To work scientifically Ask simple questions, Identify and classify, perform simple tests, <u>Observe</u> closely, using simple equipment. Use observations and ideas to suggest answers to questions, gather and record data to help in answering questions	To work scientifically Ask relevant questions, Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions, Identify differences, similarities or changes related to simple, scientific ideas and processes, Use straightforward, scientific evidence to answer questions or to support their findings, Make accurate measurements using standard units, using a range of equipment, e.g. thermometers and data loggers	To work scientifically Plan enquiries, including recognising and controlling variables where necessary. Use appropriate techniques, apparatus, and materials during fieldwork and laboratory work. Take measurements, using a range of scientific equipment, with increasing accuracy and precision. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs, and models. Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions. Present findings in written form, displays and other presentations. Use test results to make predictions to set up further comparative and fain tests.
			Use simple models to describe scientific ideas, identifying scientific evidence that has been used to support or refute ideas or arguments

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	To investigate materials	To investigate materials	To investigate materials			· · · · ·	
	Distinguish between an object	Compare and group together	Compare and group together	l			To understand movement,
	and the material from which it	different kinds of rocks on the	everyday materials based on	l			forces and magnets (Notice that
	is made, Identify and name a	basis of their simple, physical	evidence from comparative and fair				some forces need contact
	variety of everyday materials,	properties, Relate the simple	tests, including their hardness,	1			between two objects and some
	including wood, plastic, glass,	physical properties of some rocks	solubility, conductivity (electrical and	1			forces act at a distance, observe
	metal, water and rock,	to their formation (igneous or	thermal), and response to magnets.	l			how magnets attract or repel each
	Describe the simple physical	sedimentary), Describe in simple	Understand how some materials will	l			other and attract some materials
	properties of a variety of	terms how fossils are formed	dissolve in liquid to form a solution	l			and not others, Compare and
	everyday materials, Compare	when things that have lived are	and describe how to recover a	i I	ets	ets	ទី group together a variety of
	and group together a variety	trapped within sedimentary rock,	substance from a solution.	1	agn	l b	everyday materials on the basis of
	of everyday materials on the	Compare and group materials	Use knowledge of solids, liquids and	1	l e		whether they are attracted to a
	basis of their simple physical	together, according	gases to decide how mixtures might		P P		P magnet and identify some
	properties).	to whether they are solids, liquids	be separated, including through	i	all		magnetic materials).
		or gases, <u>Observe</u> that some	filtering, sieving and evaporating.	1	U U	l i i i i i i i i i i i i i i i i i i i	l ii
	To investigate materials (Find	materials change state when they	Give reasons, based on evidence	1	E E	1 E	
	out how the shapes of solid	are heated or cooled, and	from comparative and fair tests, for				
	objects made from some	measure the temperature at which	the particular uses of everyday				
	materials can be changed by	this happens in degrees Celsius	materials, including metals, wood and				
	squashing, bending, twisting	(°C), building on their teaching in	plastic.				
	and stretching, Identify and	mathematics, Identify the part	Demonstrate that dissolving, mixing				
	compare the uses of a variety	played by evaporation and	and changes of state are reversible				
	of everyday materials,	condensation in the water cycle	changes.	1			
	including wood, metal, plastic,	and associate the rate of	Explain that some changes result in	1			
	glass, brick/rock, and	evaporation with temperature.	the formation of new materials, and				
	paper/cardboard).		that this kind of change is not usually	1			



#### **PROGRESSION MAPPING**

reversible, including changes associated with burning, oxidisation and the action of acid on bicarbonate

of soda

Sound	To investigate sound and hearing (Identify how sounds are made, associating some of them with something vibrating, Recognise that sounds get fainter as the distance from the sound's source increases).	To investigate sound and hearing Find patterns between the pitch of a sound and features of the object that produced it. Find patterns between the volume of a sound and the strength of the vibrations that produced it.
Light	To investigate light and seeing Notice that light is reflected from surfaces. Associate shadows with a light source being blocked by something; find patterns that determine the size of shadows	To investigate light and seeing Understand that light appears to travel in straight lines. Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eyes. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them, and to predict the size of shadows when the position of the light source changes.
Electricity	To understand electrical circuits Identify whether or not a lamp will light in a simple series circuit based on whether or not the lamp is part of a complete loop with a battery. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. Recognise some common conductors and insulators and associate metals with being good conductors.	To understand electrical circuits Identify and name the basic parts of a simple electrical circuit, including cells, wires, bulbs, switches and buzzers. Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches

#### PROGRESSION MAPPING

# Word Definition Light A form of energy that travels in a wave from a source Light source An object that makes its own light Dark Dark is the absence of light Vibration A quick movement back and forwards Amplitude The size of the vibration A larger amplitude means a louder sound. Volume The loudness of a sound

It takes 8 minute and 20 seconds for light from the sun to reach the Earth.

Dogs can hear much higher sounds than humans and bats and dolphins can hear lower sounds than humans.

loud

quiet

#### Jseful pictures/diagrams





To understand animals and humans (Investigate and describe the basic needs of animals, including humans, for survival (water, food and air), Describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene).

To investigate living things (Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants and how they depend on each other).

To understand animals and humans (Identify and name a variety of common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates, 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 (birds, fish, amphibians, reptiles, mammals and invertebrates, including pets), Identify name, draw and label the basic parts of the human body and say which part of the body is associated with each sense, Notice that animals, including humans, have offspring which grow into adults,

Animals including humans

To investigate living things Explore and compare the differences between things that are living, that are dead and that have never been alive To understand animals and humans

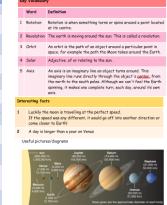
Identify that animals, including humans, need the right types and amounts of nutrition, that they cannot make their own food and they get nutrition from what they eat.

Describe the ways in which nutrients and water are transported within animals, including humans. Identify that humans and some animals have skeletons and muscles for support, protection and movement. 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. To understand animals and humans Identify and name the main parts of the human circulatory system, and explain the functions of the heart, blood vessels and blood (including the pulse and clotting).



				1			
	To understand plants (Identify and name a variety of	To understand plants (Identify	To understand plants Relate knowledge of plants to studies			To understand evolution and	To understand evolution and
	common plants, including	and describe the functions of	of evolution and inheritance.			inheritance	inheritance
	garden plants, wild plants and	different parts of flowering plants: roots, stem, leaves and flowers,	Relate knowledge of plants to studies				
	trees and those classified as	Explore the requirements of plants	3 1	<u> </u>		Identify how plants and animals,	Recognise that living things produce
2	deciduous and evergreen,	for life and growth (air, light,	ci un trong unings.	Le la		including humans, resemble their	offspring of the same kind, but
tua	Identify and describe the basic	water, nutrients from soil, and		i i i i i i i i i i i i i i i i i i i		parents in many features.	normally offspring vary and are not
ц р	structure of a variety of	room to grow) and how they vary		Inheritance		Recognise that living things have	identical to their parents.
ano	common flowering plants,	from plant to plant, Investigate				changed over time and that fossils	Describe how adaptation leads to
E.	including roots, stem/trunk,	the way in which water is		and		provide information about living	evolution.
pi l	leaves and flowers, Observe	transported within plants, Explore					
3	and describe how seeds and	the role of flowers in the life cycle		<u>i</u>		things that inhabited the Earth	Recognise how and why the human
ř.	bulbs grow into mature plants.	of flowering plants, including		5		millions of years ago.	skeleton has changed over time,
	Find out and describe how	pollination, seed formation and		Evolution		Identify how animals and plants	since we separated from other
	plants need water, light and a	seed dispersal).		-		are suited to and adapt to their	primates.
	suitable temperature to grow					environment in different ways.	· · · · · · · · · · · · · · · · · · ·
	and stay healthy).					,,,,,,,,	
		To investigate living things	To investigate living things				
		Identify and name a variety of	Describe the life cycles common to a				
		living things (plants and animals)	variety of animals, including humans			To understand the Earth's	To understand the Earth's
		in the local and wider	(birth, growth, development,			movement in space	movement in space
		environment, using classification	reproduction, death), and to a variety			Describe the movement of the	Describe the Sun, Earth and Moon as
됩		keys to assign them to groups.	of plants (growth, reproduction and	8		Earth relative to the Sun in the	approximately spherical bodies.
their habita		Give reasons for classifying plants	death).	Space			Use the idea of the Earth's rotation to
ed.		and animals based on specific	Explain the classification of living	S.		solar system, Describe the	
iei.		characteristics.	things into broad groups according	pue		movement of the Moon relative to	explain day and night.
<b>4</b>		Recognise that environments are	to common, observable			the Earth.	
and		constantly changing and that this	characteristics and based on	Earth			
5		can sometimes pose dangers to	similarities and differences, including	2			
ie		specific habitats.	plants, animals and micro-organisms.				
Living things			Describe the life process of				
ž.			reproduction in some plants and animals.				
_			Describe the changes as humans				
			develop from birth to old age.				
			Recognise the impact of diet,	Knowledge Organiser for	: Science-Is the Force With You? Term: 2	Year group: 4/5	
			exercise, drugs and lifestyle on the	Skills and Knowledge			
			way	Question	Answer	Key Vocabulary Word Definition	
	-	•		1 How does gravity work?	Gravity is a force that pulls objects downward, Gravity is what holds the planets in arbit around the sun and what keeps the mean in arbit	1 Rotation Rotation is when something turns or spins around a point located	
				2 How do forces such as drag and	around Earth. As a moving object pushes the liquid or gas out of its way, the fluid	at its centre. 2 Revolution The earth is moving around the sun. This is called a revolution.	
				motion work?	pushes back on the object. This drag force is always opposite to the object's mation, and unlike friction between solid surfaces, the drag force increases as the object moves faster.	3 Orbit An orbit is the path of an object around a particular point in space, for example the path the Moon takes around the Earth.	
				3 How could you appropriately plan, predict and describe a scientific	force increases as the object moves faster A question is created from the information available. A plan/method is put together about how to test it. Predictions are made. The	4 Solar Adjective, of an relating to the sun.	

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predict of describes a scientific operation         prin traphene doet have to text it. Nextedires are need, "The operation of describes a scientific record, and or its analysis and the scientific record and print its its control operation of the scientific record and the scientific record scientific cognition."           4         Here doets the formation of the scientific record and or the scientific cognition."         Observations are made, results are recorded and formation on depress it.           5         Was the formation of the scientific record and the scientific record and the scientific cognition."         Experimeters can be presented and offerent nadia-written, record and scientific cognition. This is the scientific record and scientific record and are complex relation. If this has the scientific record and scientific cognition. This is an order relation. This is the scientific record and scientific record and are complex relation. This is the scientific record and are complex relation. This is the science of the scientific science of the formation science of the science of the scientific science of the formation science of the	2 3			2
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ether parts of the sale system bill move an used 1. Apart from the Say, the largest members of the Sale system of the sale system of the sale system parts. Never the Sare of the forly mail, rely plasts - Mercary, Yane, Berth and Merc. 9 Hen could you darshe the movement of the forth vicities to the Sare is 16 Hen Constructions the Neveral 16 Hen Constructions the Neveral 17 Hen Constructions the Neveral 17 Hen Constructions the Neveral 18 Hen Constructi	2	2		7
of the Earth relative to the Sun in the Earth's path around the Sun is called its orbit. It takes the Earth one salar system and the inversent of the Moon relative to the Earth. 10 Hear can you represent the movement				8
			the Earth relative to the Sun in the ar system and the movement of	9
				10



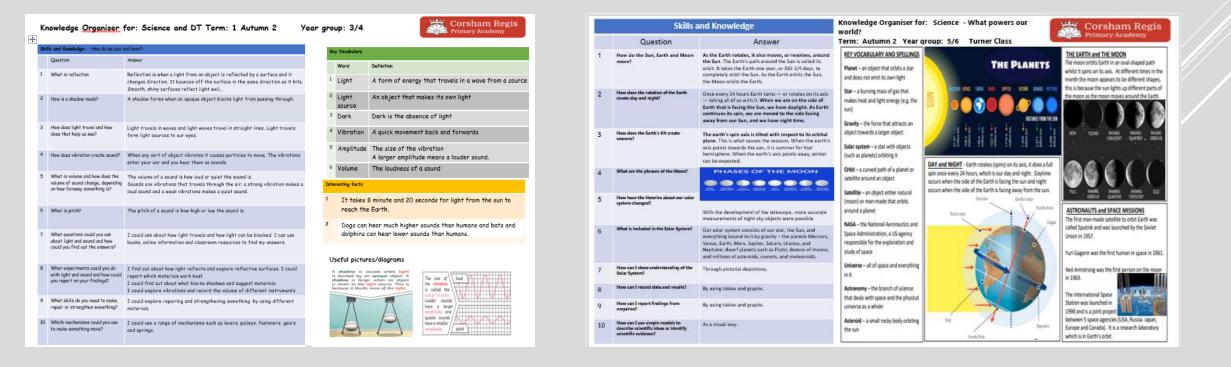


Each Science topic includes our profound learning, which inspires and enthuses the children in their Science learning.

We use knowledge organisers to support the children with their scientific vocabulary, knowledge and understanding of key ideas.

'Working Scientifically' is weaved through all of our Science topics.

#### PROVISION





I led staff meetings to support staff with their science assessment. We moderated books from every class. I completed a staff questionnaire to find out areas for development in science. These will form our action plan in Science next year.



I ran our Eco-council and they ran an Eco-day for the school.

# IMPLEMENTATION





The Eco-council completed lots of litter picking. They entered and won a competition to win a bear bin.



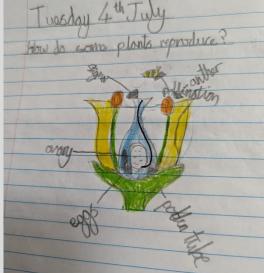


I made links with our local climate campaigners and they came to visit and share ways Science is helping planet Earth. I introduced Science Ambassadors this year. They supported Science week and helped in Explorify lessons with the younger children.

#### IMPLEMENTATION

### IMPLEMENTATION

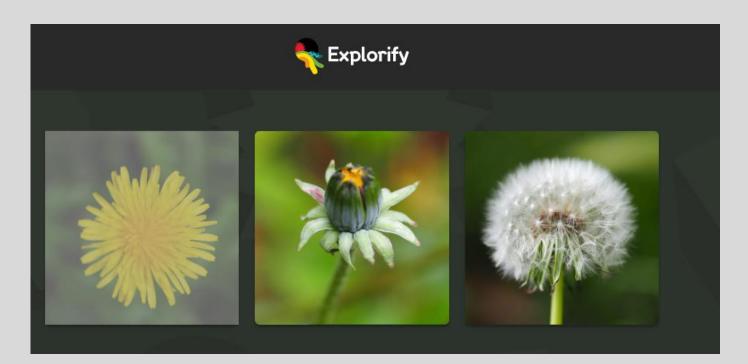
Science lessons are assessed against the milestones document. Teachers use what they have seen in lessons and books to assess the children and record their assessment. On this document are sections showing the pupils on the SEN register, EAL and pupil premium for tracking.



	A	В
1		
2	Key- Girls, Boys, P.P, SEN, EAL	
3	Working Scientifically	
4	planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.	
5	taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.	
6	recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.	
7	using test results to make predictions to set up further comparative and fair tests.	
8	reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.	
9	identifying scientific evidence that has been used to support or refute ideas or arguments.	
10		
11	Living Things & Their Habitats	
12	describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird	
13	describe the life process of reproduction in some plants and animals.	
14		



#### Explorify lessons



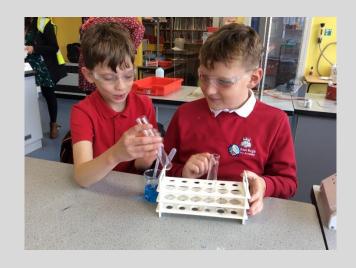
### PROVISION

The children take part in weekly explorify science lessons.

### IMPACT

The children are excited to find out more about the images and facts behind each explorify starter. They revise and learn new scientific knowledge.





Outstanding chemistry, biology and physics.



Outdoor learning



Science lessons

school lab.

in the secondary



Science through LEGO.

### PROVISION

Teachers deliver excellent lessons in Science.

### IMPACT

The children learn in a variety of exciting ways.



### **SCIENCE CLUB**

#### PROVISION

We have a Science Club at Regis.

#### IMPACT

The children are enthusiastic about Science and love learning more through experiments.









*I love finding out things and watching science videos!* 

*I really loved the wildlife park Wow day because I found out more about animals.* 



Science is my bestest and my teacher is so good at science.

*I loved doing a chemical explosion experiment in the science lab.* 

*When I think about Science I think about all the fun things I've done this year.* 

> *Predicting is fun because we can test our own theories and be right or learn something.*

### WHAT DO CHILDREN AT REGIS SAY ABOUT SCIENCE?









Detailed study of animals and plants

#### Chemical reactions

#### Cotswold Wildlife Park

#### Mini beast hunting

#### REGIS WOW DAYS



Models of the eye

Floating and sinking



#### Reading for knowledge



#### Experiments







### SCIENCE WEEK











I liked collecting my stickers because I could see how much fun Science I had done.

I loved the experiments on water filtering with our visitor.

I loved getting the food colouring out for an experiment. We made some awesome colours move up the flowers and celery.

The best thing about Science week was doing extra Explorify and finishing my challenge booklet.

# WHAT DID CHILDREN SAY ABOUT SCIENCE WEEK?

### DATA HIGHLIGHTS FOR 2023-2024



From looking at our assessment data for the school year 2023-2024, the following trends appear:

- > Year 1 / 2 had 78% of children achieving expected and above in Science overall.
- > In year 3, 88% of the children achieving expected in Science.
- > Year 4 had 74% of the children achieving expected in Science overall.
- Year 5 had all of the class reach expected or above in Electricity so all of the SEN children achieved expected in this area. Year 5 had 86% expected and above across all Science topics.
- In Year 6, 90% of children achieved expected or above in Science overall. They had 17% at greater depth for Electricity.
- > As part of the SIP targets, my data analysis next year will look at tracking SEN.



- Monitor 'Working Scientifically' in Science lessons and through staff meeting moderation.
- Monitor Explorify lessons.
- > Monitor Science assessments on the second year of the cycle.
- Continue to invite visitors to enhance our Science provision.

### FINAL REFLECTION/NEXT STEPS FOR NEXT ACADEMIC YEAR- 2024/25