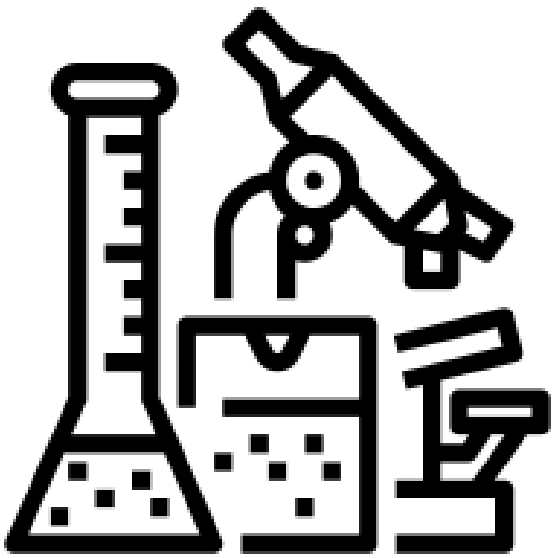
Swaffham Primaries Partnership



Science Curriculum

Contents

Science Intent

At Swaffham Prior and Bulbeck Primary, we believe children should be taught the skills, knowledge and understanding they need to question and understand concepts and phenomena that occur in the world around them, seeking explanations for these. We believe children should acquire the skills required for scientific enquiry and develop an understanding of the uses and implications of Science, today and for the future.

Our aims in teaching Science include:

- To stimulate children's curiosity and develop their interest in, and knowledge of, scientific phenomena and events of the world around them.
- To offer a range of activities which can engage all learners by linking practical, hands-on experiences with ideas, encouraging critical and creative thinking.
- To develop and use a range of working scientifically skills; helping children to pose questions, investigate these using correct techniques, accurately measure and record their findings and analyse their results.
- To use different methods of science enquiry to answer scientific questions, including observation, testing, research, classifying and identifying and pattern seeking.
- Introducing children to the language and vocabulary of science.
- Encouraging children to ask questions, take risks, experiment, reflect and learn from mistakes, in a safe environment.
- Fostering concern about, and active care for, our environment.

Core Concepts

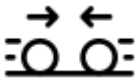
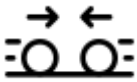
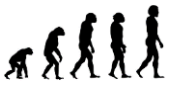
Core concepts are revisited thus building upon children's knowledge and understanding

Core concept	Units encompassed within the core concept
Living Things	• Living things and their habitats • Plants • Animals, including humans • Evolution and inheritance
Materials	• Everyday materials • Uses of everyday materials • Rocks and soils • States of matter • Properties and changes of materials
Forces	• Forces and magnets • Forces
Energy	• Light • Sound • Electricity
Earth & Space	• Seasonal changes • Earth and space

Disciplinary Vocabulary

Year 1 and 2 key scientific vocabulary	Year 3 and 4 key scientific vocabulary	Year 5 and 6 key scientific vocabulary
answer	changes	accuracy
chart	classify	argument
compare	conclusion	classify
describe	construct	comparative
diagram	contrast	conclusion
differences	data	describe
equipment	evidence	diagram
group	explanations	explanation
identify	fair test	fair testing
measurements	gather	identify
observe	improve	labels
observing	interpret	measurement
question	keys	plan
results	prediction	precision
sort	present	prediction
similarities	record	refute
test	research	relationship
	secondary sources	support
	thermometer	systematic
		variables

Science Overview

		Autumn		Spring		Summer	
EYFS	Year A	Understanding the world involves guiding children to **make sense of their physical world and their community**. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension. Learning themes taught in the EYFS differ each year in order to follow the interests of each cohort. This is in line with the Early Years Foundation Stage Framework. Skills associated with Science content will be embedded within these learning themes.					
KS1	Year A	Everyday Materials 	Animals inc. Humans 	Living Things & their Habitats 		Living Things & their Habitats 	Seasonal Changes (all year) 
	Year B	Common animals 	Animals inc. Humans 	Uses of Everyday Materials 		Plants 	
Lower KS2	Year A	Rocks 	Animals inc. Humans 	Electricity 	Magnets 	Sound 	Forces 
	Year B	Light 	Animals, inc. Humans 	States of Matter 	Living Things & their Habitats 	Plants 	
Upper KS2	Year A	Animals inc. Humans 		Forces 		Light 	Electricity 
	Year B	Earth & Space 	Evolution & Inheritance 	Properties & Changes of Materials 		Living Things & their Habitats 	

Enquiry Questions

<table>
<tr><th></th><th></th><th colspan="2">Autumn</th><th colspan="2">Spring</th><th colspan="2">Summer</th></tr>
<tr><td>EYFS</td><td></td><td colspan="6">Learning themes taught in the EYFS differ each year in order to follow the interests of each cohort. This is in line with the Early Years Foundation Stage Framework. These are the key questions we cover each year (but not limited to):
Animals, inc. Humans
● What are the different parts of my body?
● What can our bodies do?
● What is the function of the brain/heart/stomach/lungs
● How do humans change as they grow?
● How do animals change as they grow (lifecycles)
Plants
● What things do plants need to grow?
● What are the main parts of a plant?
Seasonal Changes
● What are the seasons of the year?
● What changes do you notice in autumn/winter/spring/summer?
Everyday Materials
● What happens when I mix different colours together?
● What materials are waterproof?
● What makes a boat float?
What materials are magnetic?</td></tr>
<tr><td rowspan="2">KS1</td><td>Year A</td><td>Everyday Materials
What material would you make a window from? Why?</td><td>Animals, inc. Humans
How do animals sense their environment?</td><td colspan="2">Living Things and their Habitats
How are the animals in Tanzania suited to their habitats?</td><td>Living Things and their Habitats
What lives in a rock pool micro-habitat?</td><td>Seasonal Changes
How do things change in different seasons?</td></tr>
<tr><td>Year B</td><td>Common Animals
Which animals live with and near us?</td><td>Animals, inc. Humans
How can we group animals?</td><td colspan="2">Uses of Everyday Materials
Which material is best for a boat?</td><td colspan="2">Plants
Which plants can be found in our local area?
How do plants grow best?</td></tr>
<tr><td rowspan="2">Lower KS2</td><td>Year A</td><td>Rocks
Which is the best rock for a Stone Age tool?</td><td>Animals inc. Humans
What is a healthy diet and why is it important?</td><td>Electricity
How has electricity changed the way we live?</td><td>Magnets
Do magnetic materials always conduct electricity?</td><td>Sound
How does the volume of an instrument change as it moves further away?</td><td>Forces
Which surface is best to move an object on?</td></tr>
<tr><td>Year B</td><td>Light
What is a shadow?</td><td>Animals, inc. Humans
What do our bodies do with the food we eat?</td><td>States of Matter
What is the water cycle?</td><td>Living Things & their Habitats
What effect does the Fenland habitat have on living things?</td><td colspan="2">Plants
Which conditions help seeds germinate faster?</td></tr>
<tr><td rowspan="2">Upper KS2</td><td>Year A</td><td colspan="2">Animals inc. Humans
How does the human circulatory system work?
How do humans change as they go through the different stages of life?</td><td colspan="2">Forces
How and why do objects move?</td><td>Light
How do our eyes adapt to different conditions?</td><td>Electricity
Can we vary the effects of electricity?</td></tr>
<tr><td>Year B</td><td>Earth & Space
Sun, Earth and Moon: What is moving and how do we know?</td><td>Evolution & Inheritance
What is evolution, how does it happen and how do scientists know?</td><td colspan="2">Properties & their Materials
How can we change materials reversibly and irreversibly?</td><td colspan="2">Living Things & their Habitats
Do all plants and animals reproduce in the same way?
Who is Linneaus and how is his work used today?</td></tr>
</table>

Skills Progression

	EYFS	KS1	LKS2	UKS2
Asking questions and recognising that they can be answered in different ways	➢ Learn and use a wider range of vocabulary. (N/R) ➢ Understand a question or instruction that has two parts. (N) ➢ Understand 'why' questions. (N) ➢ Ask questions to find out more. (R) ➢ Select and use activities and resources with help, when needed. (N) ➢ Planning and making decisions about how to approach a task. (N/R)	➢ Ask simple questions and recognise that they can be answered in different ways.	➢ Ask relevant questions and use different types of scientific enquiries to answer them.	➢ Plan different types of scientific enquiries to answer questions, including recognising and controlling variables, where necessary.
Making observations and taking measurements	➢ Use all their senses in hands-on exploration of natural materials. (N) ➢ Describe what they see, hear and feel whilst outside. (R) ➢ Explore collections of materials with similar and / or different properties. (N) ➢ Talk about what they see using a wide vocabulary. (N) ➢ Know about similarities and differences between the natural world around them and contrasting environments. (R) ➢ Make observations and drawing pictures of animals and plants. (R)	➢ Observe closely, using simple equipment.	➢ Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.	➢ Take measurements, using a range of scientific equipment, with increasing accuracy and precision; take repeat readings when appropriate.
Engaging in practical enquiry to answer questions	➢ Explore how things work. (N) ➢ Explore the natural world around them. (R) ➢ Show curiosity about objects, events and people. (N/R) ➢ Engage in open-ended activities. (N/R) ➢ Thinking of idea. (N/R) ➢ Talk about the differences between materials and changes they notice. (N) ➢ Explore different materials and textures. (N) ➢ Explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function (R) ➢ Solve a problem and reach a goal. (N/R) ➢ Checking how well their activities are going. (N/R)	➢ Perform simple tests. ➢ Identify and classify.	➢ Set up simple practical enquiries, comparative and fair tests.	➢ Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
Recording and presenting evidence	➢ Represent their own ideas, thoughts and feelings. (N/R)	➢ Gather and record data to help in answering questions.	➢ Gather, record, classify and present data in a variety of ways to help in	➢ Record data and results of increasing complexity using scientific diagrams

			answering questions. ➢ Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.	and labels, classification keys, tables, scatter graphs, bar and line graphs.
Answering questions, concluding, evaluating and raising further questions and predictions	➢ Be able to express a point and to debate when they disagree. (N) ➢ Recognise some environments that are different from the one in which they live. (R) ➢ Understand some important processes and changes in the natural around them. (R) ➢ Find ways to solve problems / find new ways to do things / test their ideas. (N/R) ➢ Changing strategy as needed. (N/R) ➢ Reviewing how well the approach worked. (N/R)	➢ Use their observations and ideas to suggest answers to questions	➢ Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. ➢ Use straightforward scientific evidence to answer questions or to support their findings. ➢ Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. ➢ Identify differences, similarities or changes related to simple scientific ideas and processes.	➢ Identify scientific evidence that has been used to support or refute ideas or arguments. ➢ Report and present 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.

**Statements taken from the characteristics of effective learning, statutory framework and non-statutory guidance development matters.*