



# Whitley Village School



Whole School Long-Term Rolling Programme

Overview

## Science Curriculum Intent

### Our core principles for learning Science:

- **Fun, hands-on and practical**
- **Challenging – we don't always need to find the answer straight away**
- **Thought-provoking – we are always asking questions**
- **Well resourced**
- **Cross-curricular**
- **Varied – we don't always record things in the same way**

At Whitley Village School, Science is taught by giving our children a chance to test, make mistakes and improve and this requires children to apply the characteristics of effective learning which underpin all our teaching and learning. Our Science teaching builds knowledge and develops children's understanding of the world through first-hand experiences and exploration.

We support children in spotting patterns, understanding what they have found out and talking about their learning. We encourage them to use scientific vocabulary so that they can communicate more precisely about their observations and findings. We strive to provide an environment where children are willing to take risks when trying out their ideas and are given the opportunities to develop their scientific enquiry.

We want to inspire and challenge our pupils to become independent thinkers, who use their knowledge of Science to develop their understanding of the constantly changing world they live in.

We aim to ensure that our children can learn about how Science impacts upon and underpins much of our lives in today's society, while practical activities should stimulate their curiosity and develop a clear understanding for the future. This is done through engaging Science lessons, practical experiments, visits, talks, and links with our local community.

## Science Skills Progression

	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Questioning	respond to teacher's questions of how to find things out	with help, make own suggestions of how to find things out	turn ideas into questions which can be investigated	form testable questions to investigate	order testable questions in terms of difficulty
Predicting / Hypothesising :	make simple predictions, I think ...	make prediction with a limited reason, "I think because it does"	make prediction giving a reason based on everyday experience (hypothesis, I think because my Mum uses that at home	Hypothesise, giving a reason which uses knowledge of a similar everyday experience and applies it to a new situation e.g. 'I think little pieces will dissolve first because little bits of sugar dissolve faster than a sugar lump'.	Hypothesise, basing reason on scientific knowledge and understanding e.g. I think the little pieces will dissolve first because there is more surface touching the water'.
Planning a test	plan a test orally, supported by teacher	plan some elements of a test within a framework provided by teacher	make a simple plan which identifies basic features of the test, with help identify two of the factors which contribute to fairness	plan identifies most of the key factors and recognises that they must be kept the same in order to make test fair	plan identifies the key factors to be considered and gives each one a sensible value
Fair Testing :	recognise that a test is unfair	recognise one aspect which makes a test fair — teacher supports by keeping other factors the same	carry out simple fair test, controlling two factors recognising why it is fair, with help identifying two factors	plan identifies most of the key factors and recognises that they must be kept the same in order to make test fair	carry out simple fair test, controlling two factors recognising why it is fair, with help identifying two factors
Observation:	notice basic features	notice simple similarities/differences in observation	make comparison across two or more observations	make an adequate series of observations / measurements to establish a pattern	make an adequate series of observations measurements with appropriate precision

Measurement:				make an adequate series of measurements in standard units in order to identify patterns and trends, select appropriate measurer	measure using simple standard units using a range of simple equipment
distance/length:	compare distances visually	measure using non-standard measures	measure using simple standard units using a range of simple equipment	make an adequate series of measurements in standard units in order to identify patterns and trends, select appropriate measurer	make an adequate series of measurements with precision (0.1 unit), selecting appropriate equipment and repeating measurements
time:	time by ordering events (1st, 2nd)	time by clapping, counting, using simple timers	time in standard units using a range of simple equipment		make on adequate series of measurements with precision (0.1 unit). selecting appropriate equipment and repeating measurements
area:	compare areas visually	compare how many objects will fit into each area	compare how many of a tessellating shape are needed to cover each area	measure area in standard units (cm <sup>2</sup> )	make an adequate series of measurements in standard units in order to identify patterns and trends, select appropriate measurer
volume/capacity :	compare volumes visually	measure using non-standard measures e.g. conkers,	measure using simple measures e.g. cups	measure volume in standard units (cm <sup>3</sup> )	make an adequate series of measurements with precision (0.1 unit), selecting appropriate equipment and repeating measurements
mass:	compare mass by feel	compare 2 masses by feeling both or balancing one against the other	measure mass using standard units	measure mass in standard units (Kg, g)	measure mass using standard units

sound, light force, electricity:	measure sound, light, force (push, pull) by using senses of hearing, seeing, feeling as measures		identify similarity/difference in sound, light, forces push, pull by using senses of hearing, seeing, feeling to discriminate	make an adequate series of 'observations' In sound, light, force in order to identify patterns and trends	Select appropriate equipment in order to measure sound, (Data logger) light (Data Logger) force (force meter or Newton meter). Make a series of measurements with appropriate precision and repeat measurements
temperature:	measure temperature by feeling/touch	measure temperature using a thermometer as a number line	measure temperature in standard units (°C) using a range of simple thermometers	measure temperature in standard units rci	make an adequate series of measurements in standard units in order to identify patterns and trends, select appropriate measurer
Recording Results In Tables:	record observations/measurements in pictures using concrete objects	record observations/measurements in a simple table constructed mainly by teacher	record observations/measurements in a range of open tables mainly designed by teacher	construct own tables choosing headings to present observations and measurements clearly	Construct own tables, choosing headings, number of tests and range of measurements. Where appropriate, also include repeating measurements and averaging
Recording results In Charts/Graphs:	record observations/measurements as a pictogram prepared by teacher	record measurements by using 3-D representation	record measurements in bar charts in which the axes have been prepared by teacher	Construct bar-charts choosing and labelling axes. Begin to plot points to form simple graphs and use these to Identify patterns in data	Construct line graphs to present data choosing and labelling axes. Select appropriate form of graphical representation for a particular set of data
Drawing conclusions:	say what happened	say what happened and relate back to the prediction	describe what happened, say what has been found, give simple explanations for observations and patterns in measurements	draw conclusions, taking account of graphical patterns, Begin to relate conclusions to scientific knowledge and understanding	draw conclusions consistent with evidence and begin to relate these to scientific knowledge and understanding

# Year 1 & 2

	<b>Autumn Term</b>	<b>Spring Term</b>	<b>Summer Term</b>
<b>Year 1/2 Rolling Programme A</b>	Year 1 Module 4 – <b>Everyday materials</b> Lessons 1, 2, 3, 4  Year 1 Module 3 – <b>Using our senses</b> Lessons 1, 2, 3, 4, 5, 6 & E1	Year 1 Return to Module 4 – <b>Everyday materials</b> Lessons 5, 7, 6, 10 & E1  Year 2 Module 2 – <b>The apprentice gardener</b> Lessons 1, 2, 3, 4, 5, 6, 7, 8	Year 2 Continue with Module 2 – <b>The apprentice gardener</b> Lessons 9 & 10  Year 2 Module 5 – <b>Take care</b> Lessons 1, 2, 3, 4
	Year 1 <b>OCW: Plants</b> Lessons 1 & 2  Year 1 <b>OCW: Animal antics</b> Lesson 1  Year 1 <b>OCW: Sensing seasons</b> (link with <b>Using our senses</b> Lessons 2 & 3)	Year 1 <b>OCW: Plants</b> Lessons 3 & 4  Year 1 <b>OCW: Animal antics</b> Lesson 2  Year 1 <b>OCW: Sensing seasons</b> Lesson 4	Year 1 <b>OCW: Plants</b> Revisit Lessons 3 & 4, teach Lesson 5  Year 1 <b>OCW: Sensing seasons</b> Revisit Lessons 2 & 3
Our Changing World modules Year 1 children who are approaching plants for the first time will need experience of observing plants in their natural habitat and support for naming and identifying plants and their parts. Draw on the OCW Plants lessons suggested in the Autumn and Spring terms before starting The apprentice gardener.			
<b>Year 1 / 2 Rolling Programme B</b>	Year 2 Module 1 – <b>What is in your habitat?</b> Lessons 1, 2, 3  Year 2 Module 3 – <b>Materials: Good choices</b> Lessons 1, 3, 4, 5, 6, 7	Year 2 Module 4 – <b>Materials: Shaping up</b> Lessons 1, 2, 3, 4  Year 1 Module 2 – <b>Looking at animals</b> Lessons 1, 2, 3, 4, 7, 6, E1 & E4	Year 2 Module 6 – <b>Growing up</b> Lessons 1, 2, 3, 4,  Year 1 Module 1 – <b>Plant detectives</b> Lessons 1, 2, 3, 4, 5
Our Changing World modules			
	(teach with <b>What is in your habitat?</b> ) Lessons 1, 2, 3	Lessons 5 & 6	Lessons 6 & 7 Lesson 4 (teach with <b>Growing up</b> )

## Year3/4 -Class 2

	<b>Autumn Term</b>	<b>Spring Term</b>	<b>Summer Term</b>
<b>Year 3/4</b>  <b>Rolling Programme A</b>	Year 4 Module 3 – <b>Switched on</b> Lessons 1, 2, 3, 4, 5, 6  Year 4 Module 1 – <b>In a state</b> Lessons 1, 2, 3, 4, 5, 7, 8 (teach 7 & 8 together) 9	Year 4 Module 2 – <b>Good vibrations</b> Lessons 1, 2, 3, 4, 5, 6, 7  Year 3 Module 1 – <b>How does your garden grow?</b> Lessons 1, 2, 3, 4, 5, 6	Year 3 Return to Module 1 – <b>How does your garden grow?</b> Lessons 7, 8, 9, 10, 11, 12  Year 3 Module 4 – <b>The power of forces</b> Lessons 1, 2, 3, 4, 5, 6, 7
<b>Our Changing World modules</b>			
	Year 3 Lessons 1, 2 and 3 twice this term all together in one lesson Year 3 Lesson 4 once this term Year 3 Lesson 5 in early September	Year 3 Lessons 1, 2 and 3 twice this term all together in one lesson Year 3 Lesson 4 once this term Year 3 Lesson 5 in early Spring	Year 3 Lessons 1, 2 and 3 twice this term all together in one lesson Year 3 Lesson 4 once this term Year 3 Lesson 5 twice in Summer
<b>Year 2/3/4</b>  <b>Rolling Programme B</b>	Year 3 Module 5 – <b>Amazing bodies</b> Lessons 2, 3, 4, 6, 7, 8  Year 4 Module 4 – <b>Where does all that food go?</b> Lessons 2, 8, 9, 3, 4	Year 3 Module 2 – <b>Rock detectives</b> Lessons 1, 2, 3, 6, 7, 9, 10  Year 3 Module 3 – <b>Can you see me?</b> Lessons 1, 2, 3, 5, 6, 7, EL2	Year 4 Return to Module 4 – <b>Where does all that food go?</b> (Teach with <b>Who Am I?</b> ) Lesson 6, 7 Year 4 Module 6 – <b>Who am I?</b> Lessons 1, 2, 3, 4 Year 4 Module 5 – <b>Human impact</b> Lessons 1, 2, 3, 4, 5 Year 4 Return to Module 1 – <b>In a state</b> (teach with <b>Human impact</b> ) Lessons 10, 11
<b>Our Changing World modules</b>			
	Lesson 1 teach in September	Lesson 2 teach in early January	Lesson 3

## Year 5/6 - Class 3

	<i>Autumn Term</i>	<i>Spring Term</i>	<i>Summer Term</i>
<b>Year 4/5/6</b>  <b>Rolling Programme A</b>	Year 6 Module 6 – <b>Light up your world</b> Lessons 1, 2, 3, 4, 5  Year 5 Module 3 – <b>Get sorted</b> Lessons 1, 2, 3, 4, 5 Year 5 Module 4 – <b>Everyday materials</b> (teach with <b>Get sorted</b> as Materials Topic 1) Lessons 1, 2, 4, 5, 6	Year 6 Module 5 – <b>Danger! low voltage</b> Lessons 1, 2, 3, 4, 5, 6  Year 5 Module 1 – <b>Circle of life</b> Lessons 1, 3, 4, 5, 6, 7 Year 5 Module 2 – <b>Reproduction in plants and animals</b> (teach with <b>Circle of life</b> ) Lessons 4, 5,	Year 5 Revisit Module 2 – <b>Reproduction in plants and animals</b> Lessons 1, 2, 3, 6, 7, 8 Year 6 Module 3 – <b>Body health</b> Lessons 1, 2, 4, 5, 7
	<b>Our Changing World</b> modules	<b>Our Changing World</b> modules	<b>Our Changing World</b> modules
			Year 5 Lesson 1
<b>Year 4/5/6</b>  <b>Rolling Programme B</b>	Year 6 Module 4 – <b>Everything changes</b> Lessons 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 Year 5 Module 8 – <b>The Earth and beyond</b> Lessons 1, 2, 3, 6, 8	Year 6 Module 2 – <b>Body pump</b> Lessons 1, 2, 4, 5 Year 5 Module 7 – <b>Feel the force</b> Lessons 1, 2, 4, 5, 7, 8, 9, 10	Year 6 Module 1 – <b>Nature library</b> Lessons 1, 2, 3, 4, 5, 6, 7 Year 5 Module 5 – <b>Marvellous mixtures</b> Lessons 1, 2, 3, 4 Year 5 Module 6 – <b>Materials: All change!</b> (teach with <b>Marvellous mixtures</b> as Materials Topic 2) Lessons 1, 2, 3, 4, 5
	<b>Our Changing World</b> modules	<b>Our Changing World</b> modules	<b>Our Changing World</b> modules
	Year 6 Lessons 1 and 2 (more than once)	Year 6 Lesson 4 (more than once)	Year 6 Lesson 5 (more than once)
Year 5 children approaching the materials modules in this cycle will need experience of identifying and classifying everyday materials based on their properties. Draw on Get sorted Lesson 1 and Everyday materials Lesson 1 to support this.			