Woodland Academy Trust Disciplinary Knowledge

Subject area: Science



	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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Working scientifically	To use the following practical scientific methods, processes	To use the following practical scientific methods, processes	To use the following practical scientific methods, processes and skills	To use the following practical scientific methods, processes	To use the following practical scientific methods, processes and skills	To use the following practical scientific methods, processes and skills with increasing
	and skill (adult support may be needed).	and skills with increasing confidence.		and skills with increasing confidence.		confidence.
Questioning and	Asks simple	Asks questions about	Asks some relevant questions	Asks relevant questions	Begins to plan different	Plans different types of
enquiring	questions about the	the world around us.	and use different types of	and use different types of	types of scientific enquiries	scientific enquiries to answer
planning	world around us.		scientific enquiries to answer	scientific enquiries to	to answer questions,	questions, including
	Pagins to vasosnica	Recognises that they can be answered in	them.	answer them.	including recognising and	recognising and controlling variables where necessary.
	Begins to recognise that they can be	different ways	Begins to explore everyday	Explores everyday	controlling variables where necessary.	variables where necessary.
	answered in	(different types of	phenomena and the	phenomena and the	necessary.	Explores and talks about
	different ways	enquiry including -	relationships between living	relationships between	Begins to explore and talk	ideas, ask own questions
	(different types of	observing changes	things and familiar	living things and familiar	about ideas, ask own	about scientific phenomena,
	enquiry including -	over time, noticing	environments.	environments.	questions about scientific	analyse functions,
	observing changes	patterns, grouping			phenomena, analyse	relationships and interactions
	over time, noticing	and classifying,	Begins to develop ideas about	Begins to develop	functions, relationships and	more systematically.
	patterns, grouping	carrying out simple	functions, relationships and	ideas about functions,	interactions more	
	and classifying,	comparative tests,	interactions.	relationships and	systematically.	Begins to recognise more
	carrying out simple	finding things out		interactions.		abstract ideas and Begins to
	comparative tests,	from secondary	Begins to raise own		Begins to recognise some	recognise how these ideas
	finding things out	sources).	questions about the world	Raises own questions about	more abstract ideas and	help them to understand how
	from secondary sources).		around them.	the world around them.	Begins to recognise how these ideas help them to	the world operates.
			Begins to make some decisions	Makes some decisions	understand how the world	Begins to recognise scientific
			about which types of enquiry	about which types of	operates.	ideas change and develop over
			will be the best way of	enquiry will be the best		time.
			answering questions including	way of answering	Begins to recognise scientific	
			observing changes over time,	questions including	ideas change and develop	Selects the most appropriate
			noticing patterns, grouping	observing changes over	over time.	ways to answer science
			and classifying, carrying out	time, noticing patterns,	Bartagla salastil	questions using different
			simple comparative and fair	grouping and classifying,	Begins to select the most	types of scientific enquiry

			tests, finding things out using	carrying out simple	appropriate ways to answer	(including observing changes
			secondary sources.	comparative and fair tests,	science questions using	over different periods of time,
				finding things out using	different types of scientific	noticing patterns, grouping
				secondary sources.	enquiry (including observing	and classifying, carrying out
					changes over different	comparative and fair tests and
					periods of time, noticing	finding things out using a
					patterns, grouping and classifying, carrying out	wide range of secondary sources of information.)
					comparative and fair tests	sources of information.)
					and finding things out using	
					a wide range of secondary	
					sources of information.)	
Observing and	Begins to observe	Observe closely,	Begins to make systematic	Makes systematic and	Begins to take	Takes measurements, using a
measuring	closely, using	using simple	and careful observations	careful observations and,	measurements, using a	range of scientific equipment,
pattern seeking	simple equipment.	equipment.	and, where appropriate,	where appropriate, take	range of scientific	with increasing accuracy and
			takes accurate	accurate measurements	equipment, with increasing	precision, taking repeat
	Uses simple	Use observations and	measurements using	using standard units,	accuracy and precision,	readings where appropriate.
	observations and	ideas to suggest	standard units, using a	using a range of	taking repeat readings	
	ideas to suggest	answers to questions.	range of equipment,	equipment, including	where appropriate.	Identifies patterns that
	answers to		including thermometers	thermometers and data		might be found in the
	questions.	To observe changes	and data loggers.	loggers.	Begins to identify	natural environment.
		over time and, with	5		patterns that might be	
	Observes simple	guidance, begins to	Begins to look for naturally	Begins to look for	found in the natural	Makes decisions about what
	changes over time	notice patterns and	occurring patterns and	naturally occurring	environment.	observations to make, what
	and, with guidance, begins to notice	relationships.	relationships and decide what data to collect to	patterns and relationships and decide	Begins to make decisions	measurements to use and how long to make them for
	patterns and	To say what I am	identify them.	what data to collect to	about what observations to	and whether to repeat them.
	relationships.	looking for and what	identity them.	identify them.	make, what measurements	and whether to repeat them.
	relationships.	I am measuring.	Helps to make decisions	identity them.	to use and how long to	Chooses the most appropriate
	Says what is being	To know how to use	about what observations to	Helps to make	make them for and whether	equipment and explains how
	looked for and	simple equipment	make, how long to make	decisions about what	to repeat them.	to use it accurately.
	what is being	safely.	them for and the type of	observations to make,		
	measured.		simple equipment that	how long to make them	Chooses the most	Interprets data and find
		Use simple	might be used.	for and the type of	appropriate equipment and	patterns.
	Know how to use	measurements and	_	simple equipment that	explains how to use it	
	simple equipment	equipment with	Learns to use some new	might be used.	accurately.	Selects equipment
	safely.	increasing	equipment appropriately			independently.
		independence (e.g.	(e.g. data loggers).	Learns to use new	Begins to interpret data	
	Use simple	hand lenses and egg		equipment	and find patterns.	Makes a set of observations
	measurements and	timers)	Begins to see a pattern	appropriately (e.g. data		and say what the interval and
	equipment with		in results.	loggers).	Selects equipment	range are.
	support (eg hand	Begins to progress			independently.	
	lenses and egg	from non-standard	Begins to choose from a	Sees a pattern in		Takes accurate and precise
	timers)	units, reading mm,	selection of equipment.	results.	Makes a set of observations	measurements
	Begins to progress	cm, m, ml, l,			and say what the interval	– N, g, kg, mm, cm, mins,

	from non-standard	°C.	Begins to observe and	Chooses from a	and range are.	seconds, cm ² V, km/h, m per
	units, reading cm,		measure accurately using	selection of		sec, m/ sec Graphs – pie, line,
	m, cl, l, °C.		standard units including time	equipment.	Begins to take accurate and	bar (Year 6).
			in minutes and seconds.		precise measurements – N, g,	
				Observes and	kg, mm, cm, mins, seconds,	
				measure accurately	cm ² V, km/h, m per sec, m/ sec	
				using standard units	Graphs – pie, line.	
				including time in		
				minutes and seconds.		
Investigating	Performs simple	Performs simple tests.	Sets up some simple practical	Sets up simple practical	Begins to use test results to	Uses test results to make
	tests with		enquiries, comparative and fair	enquiries, comparative and	make predictions to set up	predictions to set up further
	support.	Discusses ideas about	tests.	fair tests.	further comparative and fair	comparative and fair tests.
		how to find things out.			tests.	
	Begins to discuss		Begins to recognise when a	Recognises when a		Recognises when and how to
	ideas about how to	Says what happened	simple fair test is necessary	simple fair test is	Begins to recognise when	set up comparative and fair
	find things out.	in investigation.	and helps to decide how to set	necessary and helps to	and how to set up	tests and explains which
			it up.	decide how to set it up.	comparative and fair tests	variables need to be
	Begins to say what				and explain which variables	controlled and why.
	happened in		Begins to think of more than	Thinks of more than one	need to be controlled and	
	investigations.		one variable factor.	variable factor.	why.	Suggests improvements to
					Begins to suggest	methods and give reasons.
					improvements to methods	
					and gives reasons.	Decides when it is appropriate
						to do a fair test.
					Begins to decide when it is	
					appropriate to do a fair test.	

Recording and	Gathers and	Gathers and records	Gathers, records, and begins	Gathers, records, classifies	Begins to record data and	Records data and results of
reporting findings	records data with	data to help in	to classify and present data in	and presents data in a	results of increasing	increasing complexity using
	some adult	answering questions.	a variety of ways to help in	variety of ways to help in	complexity using scientific	scientific diagrams and
	support, to help in	.	answering questions.	answering questions.	diagrams and labels,	labels, classification keys,
	answering		3 1		classification keys, tables	tables and bar and line
	questions.	Records simple data.	Begins to record findings	Records findings using	and bar and line graphs.	graphs.
		·	using simple scientific	simple scientific language,		
	Begins to record	Records and	language, drawings, labelled	drawings, labelled	Begins to report and	
	simple data.	communicates	diagrams, keys, bar charts and	diagrams, keys, bar charts	present findings from	Reports and presents findings
		findings in a range	tables.	and tables.	enquiries.	from enquiries.
	Begins to record and	of ways.				
	communicate		Begins to report on findings	Reports on findings from	Begins to decide how to	Decides how to record data
	findings in a range of	Shows results in a	from enquiries, including oral	enquiries, including oral	record data from a	from a choice of familiar
	ways.	table.	and written explanations,	and written explanations,	choice of familiar	approaches.
			displays or presentations of	displays or presentations	approaches.	
	Shows results in a		results and conclusions.	of results and conclusions.		Chooses how best to
	simple table.				Begins to choose how best	present data.
			Begins to use notes, simple	Uses notes, simple tables	to present data.	
			tables and standard units and	and standard units and		
			help to decide how to record	helps to decide how to		
			and analyse data.	record and analyse data.		
			Begins to record results in	Records results in tables		
			tables and bar charts.	and bar charts.		
Identifying,	Identifies and	Identifies and	Begins to identify differences,	Identifies differences,	Begins to use and develop	Uses and develops keys
grouping and	classifies with some	classifies.	similarities or changes related	similarities or changes	keys and other information	and other information to
classifying	support.		to simple scientific ideas and	related to simple scientific	to identify, classify and	identify, classify and
		Observes and	processes.	ideas and processes.	describe living things and	describe living things and
	Begins to observe	identifies,			materials.	materials.
	and identify,	compares and	Begins to talk about criteria for	Talks about criteria for		
	compare and	describes.	grouping, sorting and	grouping, sorting and		
	describe.		classifying and use simple	classifying and uses simple		
		Uses simple	keys.	keys.		
	Begins to use	features to compare				
	simple features to	objects, materials	Begins to compare and group	Compares and groups		
	compare objects,	and living things	according to behaviour or	according to behaviour or		
	materials and living	and, with help,	properties, based on testing.	properties, based on		
	things and, with	decides how to sort		testing.		
	help, decide how to	and group them.				
	sort and group					
	them.					

Research	Begins to use simple secondary sources to find answers. Begins to find information from books and computers with help.	Uses simple secondary sources to find answers. Finds information from books and computers with help.	Begins to recognise when and how secondary sources might help to answer questions that cannot be answered through practical investigations.	Begins to recognise when and how secondary sources might help to answer questions that cannot be answered through practical investigations.	Begins to recognise which secondary sources will be most useful to research ideas.	Recognises which secondary sources will be most useful to research ideas.
Conclusions	Begins to talk about what they have found out and how they found it out. Begins to say what happened in the investigation.	Talks about what they have found out and how they found it out. Says what happened in the investigations. Begins to say whether results were as expected.	Begins to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Begins to use straightforward scientific evidence to answer questions or to support findings.	Uses results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Uses straightforward scientific evidence to answer questions or to support findings.	Begins to 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. Begins to identify scientific	Reports and presents 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.
		Begins to say what should be changed in an investigation.	Begins to look for changes, patterns, similarities and differences in data in order to draw simple conclusions and answer questions.	Looks for changes, patterns, similarities and differences in data in order to draw simple conclusions and answer	evidence that has been used to support or refute ideas or arguments. Begins to draw conclusions based on data and	Identifies scientific evidence that has been used to support or refute ideas or arguments. Draws conclusions based on data and observations, uses
			With support begins to identify new questions arising from the data, make new predictions and find ways of improving what has been done.	questions. Identifies new questions arising from the data, make new predictions and finds ways of improving	observations, use evidence to justify ideas, use scientific knowledge and understanding to explain findings. Begins to use test results to	evidence to justify ideas, uses scientific knowledge and
			Begins to see a pattern in results. Begins to say what has been	what has been done. Sees a pattern in results.	make predictions to set up further comparatives and fair tests.	predictions to set up further comparatives and fair tests. Looks for different causal
			found out, linking cause and effect. Begins to say how an experiment can be improved.	Says what has been found out, linking cause and effect.	Begins to look for different causal relationships in data and identify evidence that refutes or supports ideas.	relationships in data and identifies evidence that refutes or supports ideas.

			Begins to answer questions	Identifies	Uses results to identify when	Uses results to identify when
			from results.	improvements.	further tests and observations	further tests and observations
					are needed.	are needed.
				Answers questions from		
				results.	Begins to separate opinion	Separates opinion from fact.
					from fact.	
						Draws conclusions and
					Begins to draw	identifies scientific evidence.
					conclusions and identify	
					scientific evidence.	Uses simple models.
						·
					Uses simple models.	Knows which evidence proves a scientific point.
					Knows which evidence proves	
					a scientific point.	Uses test results to make
					·	predictions to set up further
					Begins to use test results to	comparative and fair tests.
					make predictions to set up	
					further comparative and	
					fair tests.	
Vocabulary	Uses some simple	Uses simple scientific	Begins to use some scientific	Uses some scientific	Begins to read, spell and	Read, spell and pronounce
	scientific language.	language and some	language to talk and, later,	language to talk and, later,	pronounce scientific	scientific vocabulary correctly.
		science words.	write about what they have	write about what they have	vocabulary correctly.	
	Begins to use some		found out.	found out.		Use relevant scientific
	science words.	Uses comparative			Begins to use relevant	language, and illustrations to
		language –	Begins to use relevant	Uses relevant scientific	scientific language and	discuss, communicate and
	Uses comparative	bigger, faster etc.	scientific language.	language.	illustrations to discuss,	justify scientific ideas.
	language with				communicate and justify	
	support.		Begins to use comparative and	Uses comparative and	scientific ideas.	Confidently uses a range of
			superlative language.	superlative language.	5	scientific vocabulary.
					Begins to confidently use a	
					range of scientific	Uses conventions such as
					vocabulary.	trend, rogue result, support prediction and
					Danisa ta van annuartia sa	<u>'</u>
					Begins to use conventions	-er word generalisation.
					such as trend, rogue result, support prediction and -er	
					word generalisation.	Uses scientific ideas when
					word generalisation.	describing simple processes.
					Begins to use scientific ideas	Can use the correct science
					when describing simple	vocabulary.
					processes.	vocabalary.
					p. 0003503.	
					Begins to use the correct	
					science vocabulary.	

Understanding	Begins to talk	Talks about how	Begins to know which things in	Knows which things in	Begins to talk about how	Talks about how scientific ideas
	about how science	science helps us in	science have made our lives	science have made our	scientific ideas have	have changed over time.
	helps us in our	our daily lives e.g.	better.	lives better.	changed over time.	
	daily lives e.g.	torches and lights				Explains the positive and
	torches and lights	help us see when it is	Begins to understand risk in	Understands there is	Begins to explain the	negative effects of scientific
	help us see hen it	dark.	science.	some risk in science.	positive and negative	development.
	is dark.				effects of scientific	
		Begins to			development.	Sees how science is useful in
	Begins to	understand science				everyday life.
	understand science	can sometimes be			Begins to see how science is	
	can sometimes be	dangerous.			useful in everyday life.	Says which parts of our lives
	dangerous.					rely on science.
					Begins to say which parts of	
					our lives rely on science.	