Departmen	nt: Science	Year Group: 8				
Term	Topic/	Assessment	Knowledge	Skills	Literacy, numeracy and	Final assessment
	subject	Objectives		Include detail of any	SMSC opportunities	task and title
				differentiation		
Autumn	Health and	B2 1.1 Nutrients	Describe the components of a	Experimental skills and	N: Quantative problem	
	lifestyle		healthy diet	investigations	solving	See assessment
			Explain the result of each food	Select, plan and carry out the	N: Calculate means	plan
			group in the body	most appropriate types of	N: plotting & drawing	
				scientific enquiries to test	graphs	
		B2 1.2 Food tests	Describe how to test foods for	predictions, including	N: direct proportion &	
			starch, lipids, sugar and protein	identifying independent,	ratios	
			Describe the positive test for	dependent and control	N: Number size & scale,	
			each food	variables, where appropriate	quantative relationships	
				Use appropriate techniques,	between units	
				apparatus, and materials	N: Using estimation	
		B2 1.3 Unhealthy	Describe some health issues	during laboratory work, paying	N: Formulae and	
		diet	caused by an unhealthy diet	attention to health and safety	equation substitution &	
			Calculate the energy	Make and record observations	units	
			requirements of different	and measurements using a	N: simple calculations	
			people	range of methods for	L: select, synthesis &	
				different investigations; and	compare information	
		B2 1.4 Digestive	Describe the structure and	evaluate the reliability of	from a range of sources	
		system	function of the main parts of	methods and suggest possible	(SMSC)	
			the digestive system	improvements.	L: Use of Scientific	
			Describe the process of		terminology in	
			digestion	Analysis and evaluation	discussions & writing	
				Present observations and data	(SMSC)	
		B2 1.5 Bacteria and	Describe the role of enzymes in	using appropriate methods,	L: organizing ideas,	
		enzymes in	digestion	including tables and graphs.	evidence info	
		digestion	Describe the role of bacteria in	Interpret observations and	L: Identify ideas &	
			digestion	data, including identifying	supporting evidence in	
				patterns and using	text (SMSC)	
		B2 1.6 Drugs	Describe the difference	observations, measurements	L: forms of writing rules	

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			between recreational and	and data to draw conclusions.	
			medicinal drugs	Present reasoned explanations,	L: Well-developed, linked
			Describe the effects drugs	including explaining data in	paragraphs
			have on health and behaviour	relation to predictions and	
				hypotheses	
		B2 1.7 Alcohol	Describe the effect of alcohol		
			on health and behaviour	Measurement	
			Describe the effect alcohol has	Understand and use SI units	
			on pregnancy and conception	and IUPAC (International	
				Union of Pure and Applied	
		B2 1.8 Smoking	Describe the effects tobacco	Chemistry) chemical	
		j	smoke has on health	nomenclature	
			Describe the effects of	Use and derive simple	
			tobacco smoke on pregnancy	equations and carry out	
			, , ,	appropriate calculations	
			- Explain how elements are	Undertake basic data analysis	
			classified as metals and	including simple statistical	
			non-metals.	techniques.	
			- Use patterns to classify an	·	
			element as a metal or non- metal.		
			-Use observations about		
			materials to decide if they are		
	Electricity		metals or non-metals.		
	and				
	Magnetism				
	Magneriani				
		P2 1.1 Charging up	Explain how objects can become		
		P2 1.2 Circuits and	charged		
		current	Describe how charged objects		
		P2 1.3 Potential	interact		
		difference	Describe what is meant by an		
		P2 1.4 Series and	electric field		
			Describe what is meant by		
		parallel	·		

P2 1.5 Resistance	current		
	Describe how to measure		
	current		
	Describe what is meant by		
	potential difference		
	Describe how to measure		
	potential difference		
	Describe what is meant by the		
	rating of a battery or bulb		
	Describe the difference		
	between series and parallel		
	circuits		
	Describe how current and		
P2 1.6 Magnets and	potential difference vary in		
magnetic fields	series and parallel circuits		
	Describe what is meant by		
	resistance		
P2 1.7	Calculate the resistance of a		
Electromagnets	component of a circuit		
	Describe the difference		
	between conductors and		
	insulators in terms of		
P2 1.8 Using	resistance		
electromagnets	Describe how magnets interact		
	Describe how to represent		
C2 1.1 Metals and	magnetic fields		
non-metals	Describe the Earth's magnetic		
	field		
	Describe how to make an		
	electromagnet		

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			Describe how to change the		
			strength of an electromagnet		
			Describe some uses of an		
			electromagnet		
			Describe how a simple motor		
		C2 1.2 Groups and	works		
		•	WOI KS		
		periods			
			llas nottonus to nuodist		
			Use patterns to predict		
			properties of elements.		
			- Compare patterns in		
			properties in the groups and		
			periods of the Periodic Table.		
			- Use trends shown by numerical		
			data to predict missing values.		
	he		data to predict missing values.		
	eriodic				
ta	able	C2 1.3 The elements			
		of Group 1	Interpret data to describe		
		•	patterns in properties of the		
			Group 1 elements.		
			-Use patterns to predict		
			properties of Group 1		
			elements.		
			- Record observations about		
			how Group 1 metals react with		
			water, and the pH of the		
			solution formed.		
		C2 1.4 The elements			
		of Group 7	- Use patterns to predict		
			· · · · · · · · · · · · · · · · · · ·		
			properties of Group 7		
			elements.		

		C2 1.5 The elements of Group 0	 Describe displacement reactions. Identify risks of using Group 7 elements using the hazard symbols associated with them. Describe the physical and chemical properties of the Group 0 elements. Use patterns to predict properties of Group 0 elements. Draw conclusions on the properties and trends of Group 0 elements based on experimental and secondary data. 			
spring	Metals and their reactions	C2 3.1 Acids and metals C2 3.2 Metals and oxygen	Compare the reactions of different metals with dilute acids Explain the test for hydrogen gasDecide which metals react more vigorously from practical observations. Compare the reactions of different metals with oxygen Use state symbols in balanced formula equations Rank metals in order of how vigorously they react with	Experimental skills and investigations Select, plan and carry out the most appropriate types of scientific enquiries to test predictions, including identifying independent, dependent and control variables, where appropriate Use appropriate techniques, apparatus, and materials during laboratory work, paying attention to health and safety Make and record observations and measurements using a	N: Quantative problem solving N: Calculate means N: plotting & drawing graphs N: direct proportion & ratios N: Number size & scale, quantative relationships between units N: Using estimation N: Formulae and equation substitution & units N: simple calculations	

	oxygen.	nance of motheds for	1: soloct synthogia &
	oxygen.	range of methods for	L: select, synthesis &
C2 3.3 Metals and	Compare the reactions of	different investigations; and	compare information
water	metals with water.	evaluate the reliability of	from a range of sources
	- Use the reactivity series to	methods and suggest possible	(SMSC)
	predict reactions.	improvements.	L: Use of Scientific
	- Plan a practical to compare		terminology in
	the reactivity of three metals.	Analysis and evaluation	discussions & writing
C2 3.4 Metal	Predict if a given pair of	Present observations and data	(SMSC)
displacement	substances will undergo	using appropriate methods,	L: organizing ideas,
reactions	displacement.	including tables and graphs.	evidence info
	- Use the reactivity series to	Interpret observations and	L: Identify ideas &
	explain displacement	data, including identifying	supporting evidence in
	reactions.	patterns and using	text (SMSC)
	- Predict which combinations	observations, measurements	L: forms of writing rules
	of metals and metal	and data to draw conclusions.	
	compounds will lead to displacement reactions.	Present reasoned explanations,	L: Well-developed, linked
	displacement reactions.	including explaining data in	paragraphs
C2 3.5	Use the reactivity series to	relation to predictions and	
Extracting metals	decide which metals can be	hypotheses	
	extracted from their ores		
	by heating with carbon.	Measurement	
	- Calculate the amounts of	Understand and use SI units	
	metals in ores Link an example of metal	and IUPAC (International	
	extraction to knowledge of	Union of Pure and Applied	
	the reactivity series.	Chemistry) chemical	
	,	nomenclature	
C2 3.6 Ceramics	Explain ceramic properties.	Use and derive simple	
	- Explain why properties of	equations and carry out	
	ceramics make them	appropriate calculations	
	suitable for their uses Plan a method for	Undertake basic data analysis	
	comparing the strength of	including simple statistical	
	ceramic materials, identifying	techniques.	
	the variables that need to be	Experimental skills and	N: Quantative problem

		controlled	investigations	solvina
	C2 3.7 Polymers C2 3.8 Composites	controlled Describe polymer properties. - Explain how polymer properties make them suitable for their uses. - Interpret data on polymers to decide on the best polymer for a given purpose, justifying the choice Describe composite properties. - Explain why composite properties make them suitable for their uses. - State the relationship shown	investigations Select, plan and carry out the most appropriate types of scientific enquiries to test predictions, including identifying independent, dependent and control variables, where appropriate Use appropriate techniques, apparatus, and materials during laboratory work, paying attention to health and safety Make and record observations and measurements using a	solving N: Number size & scale, quantative relationships between units N: Use of calculations with conversion between fractions, %, ratios N: plotting & drawing graphs N: interpreting data (charts/tables/graphs) N: use common units & simple compound units N: simple calculations L: Tdantify magning in
		on a graph of composite strengths.	range of methods for different investigations; and evaluate the reliability of methods and suggest possible improvements.	L: Identify meaning in scientific text, bias (SMSC) L: Summarising information from a range of sources
Energy	P2 2.1 Food and fuels	Compare the energy values of food and fuels Compare the energy in foods and fuels with the energy needed for different activities	Analysis and evaluation Present observations and data using appropriate methods, including tables and graphs. Interpret observations and data, including identifying	L: Use of Scientific terminology in discussions & writing (SMSC) L: approach detailed writing tasks by creating
	P2 2.2 Energy adds up	Describe energy before and after a change Explain what brings about changes in energy	patterns and using observations, measurements and data to draw conclusions. Present reasoned explanations, including explaining data in	a plan L: arguments are well presented, discussing issues, ethic & opinions of other (SMSC)
	P2 2.3 Energy and	State the difference between energy and temperature	relation to predictions and hypotheses	L: Use of correct form in a range of writing

		P2 2.4 Energy transfer: particles P2 2.5 Energy transfer: radiation P2 2.6 Energy resources P2 2.7 Energy and power	Describe what happens when you heat up solids, liquids and gases Explain what is meant by equilibrium Describe how energy is transferred by particles in conduction and convection Describe how an insulator can reduce energy transfer Describe some sources of infrared radiation Explain how energy is transferred by radiation Describe the difference between a renewable and nonrenewable energy resource Describe how electricity is generated in a power station Explain the difference between energy and power Describe the link between power, fuel use and the cost of using domestic appliances	Measurement Understand and use SI units and IUPAC (International Union of Pure and Applied Chemistry) chemical nomenclature Use and derive simple equations and carry out appropriate calculations Undertake basic data analysis including simple statistical techniques.	styles & text, including info relevant to audience (SMSC) L: Taking different roles in discussions & writing showing understand & sensitivity (SMSC) L: Well-developed, linked paragraphs L: Alternative ways of presenting info used appropriately (SMSC)
summer	Adaptation Inheritanc	B2 3.1 Competition and adaptation B2 3.2 Adapting to	Describe some resources that plants and animals compete for	Experimental skills and investigations Select, plan and carry out the	N: Quantative problem solving N: Number size & scale,

e, genes	change	Describe how organisms are	most appropriate types of	quantative relationships
and DNA	_	adapted for their environment	scientific enquiries to test	between units
	B2 3.3 Variation		predictions, including	N: Use of calculations
		Describe how organisms adapt	identifying independent,	with conversion between
		to environmental changes	dependent and control	fractions, %, ratios
		3	variables, where appropriate	N: plotting & drawing
		Describe how competition can	Use appropriate techniques,	graphs
		lead to adaptation	apparatus, and materials	N: interpreting data
	B2 3.4 Continuous	•	during laboratory work, paying	(charts/tables/graphs)
	and discontinuous		attention to health and safety	N: use common units &
			Make and record observations	simple compound units
		Describe how variation within a	and measurements using a	N: simple calculations
		species occurs	range of methods for	L: Identify meaning in
			different investigations; and	scientific text,bias
	B2 3.5 Inheritance	Describe the difference	evaluate the reliability of	(SMSC)
		between environmental and	methods and suggest possible	L: Summarising
		inherited variation	improvements.	information from a
				range of sources
		Describe the difference	Analysis and evaluation	L: Use of Scientific
		between continuous and	Present observations and data	terminology in
	B2 3.6 Natural	discontinuous variation	using appropriate methods,	discussions & writing
	selection		including tables and graphs.	(SMSC)
		Represent variation within a	Interpret observations and	L: approach detailed
		species using graphs	data, including identifying	writing tasks by creating
	02.275		patterns and using	a plan
	B2 3.7 Extinction		observations, measurements	L: arguments are well
	D2 2 1		and data to draw conclusions.	presented, discussing
	B2 2.1	Describe the process of	Present reasoned explanations,	issues, ethic & opinions
	Photosynthesis	photosynthesis	including explaining data in	of other (SMSC)
			relation to predictions and	L: Use of correct form
		State the word equation for	hypotheses	in a range of writing
	B2 2.2 Leaves	photosynthesis	Measurement	styles & text, including info relevant to audience
	BL L.L Leaves		Measurement	INTO relevant to audience

Ecosystem		Describe the structure and	Understand and use SI units	(SMSC)
s – plants		function of the main components	and IUPAC (International	L: Taking different roles
		of a leaf	Union of Pure and Applied	in discussions & writing
		0, 4,64	Chemistry) chemical	showing understand &
Cellular	B2 2.3 Plant	Explain the distribution of	nomenclature	sensitivity (SMSC)
processes	minerals	chloroplasts in a leaf	Use and derive simple	L: Well-developed, linked
		ornor opras is a rear	equations and carry out	paragraphs
		Describe how the plant uses	appropriate calculations	L: Alternative ways of
		minerals for healthy growth	Undertake basic data analysis	presenting info used
		minor and you meaning growing	including simple statistical	appropriately (SMSC)
		Explain the role of nitrates in	techniques.	: Quantative problem
		plant growth	Experimental skills and	solving
	B2 2.4	Francisco de la constantina della constantina de	investigations	N: direct proportion &
	Chemosynthesis	Describe where chemosynthesis	Select, plan and carry out the	simple ratios
		takes place	most appropriate types of	N: Use of calculations
		,	scientific enquiries to test	with conversion between
		Describe the process of	predictions, including	fractions, %, ratios
		chemosynthesis	identifying independent,	N: Calculate means
		,	dependent and control	N: interpreting data
	B2 2.5 Aerobic	State the word equation for	variables, where appropriate	(charts/tables/graphs)
	respiration	aerobic respiration	Use appropriate techniques,	N: plotting & drawing
		'	apparatus, and materials	graphs
			during laboratory work, paying	N: Number size & scale,
			attention to health and safety	quantative relationships
	B2 2.6 Anaerobic	Describe the process of aerobic	Make and record observations	between units
	respiration	respiration	and measurements using a	N: calculation using +-*/
			range of methods for	singly & in combination
			different investigations; and	N: understanding <>= ≈
			evaluate the reliability of	L: Identify meaning in
		State the word equation for	methods and suggest possible	scientific text,bias
		anaerobic respiration	improvements.	(SMSC)
		5 11 11 1166	Analosis and sociostics	L: Summarising
		Describe the differences	Analysis and evaluation	information from a

		between aerobic and anaerobic	Present observations and data	range of sources
		respiration	using appropriate methods,	L: Use of Scientific
			including tables and graphs.	terminology in
	B2 2.7 Food chains	Describe what food chains show	Interpret observations and	discussions & writing
	and webs		data, including identifying	(SMSC)
		Describe what food webs show	patterns and using	L: Collaboration &
			observations, measurements	contribution to group
		escribe the interdependence of	and data to draw conclusions.	discussions (SMSC)
		organisms	Present reasoned explanations,	L: Identify ideas &
			including explaining data in	supporting evidence in
	B2 2.8 Disruption to	Describe how toxic materials	relation to predictions and	text (SMSC)
	food chains and	can accumulate in food chains	hypotheses	L: Well-developed, linked
	webs			paragraphs
			Measurement	L: Use of correct form
		Describe how different	Understand and use SI units	in a range of writing
	B2 2.9 Ecosystems		and IUPAC (International	styles & text, including
		organisms co-exist within an	Union of Pure and Applied	info relevant to audience
		ecosystem	Chemistry) chemical	(SMSC)
		T. 1.00 1.1 1.11	nomenclature	: Quantative problem
		Identify niches within an	Use and derive simple	solving
		ecosystem	equations and carry out	N: direct proportion &
			appropriate calculations	simple ratios
			Undertake basic data analysis	N: Use of calculations
		Calacilata mand	including simple statistical	with conversion between
		Calculate speed	techniques.	fractions, %, ratios
	2 3.1 Speed	Describe relative motion	Experimental skills and	N: Calculate means
Forces and		Interpret distance time excels	investigations	N: interpreting data
Motion	20004	Interpret distance- time graphs	Select, plan and carry out the	(charts/tables/graphs)
	P2 3.2Motion graphs	Calculate speed using a distance	most appropriate types of	N: plotting & drawing
Pressure		time graph	scientific enquiries to test	graphs
			predictions, including	N: Number size & scale,
		Describe the factors that	identifying independent,	quantative relationships
		Describe the factors that	dependent and control	between units

	P2 3.3 Pressure in	affect gas pressure	variables, where appropriate	N: calculation using +-*/
	gases	Describe the atmospheric	Use appropriate techniques,	singly & in combination
		pressure changes with height	apparatus, and materials	N: understanding <>= ≈
			during laboratory work, paying	L: Identify meaning in
			attention to health and safety	scientific text, bias
		Describe how liquid pressure	Make and record observations	(SMSC)
	P2 3.4 Pressure in	changes with depth	and measurements using a	L: Summarising
	liquids	Explain why some things sink	range of methods for	information from a
		and some float	different investigations; and	range of sources
			evaluate the reliability of	L: Use of Scientific
			methods and suggest possible	terminology in
		Calculate pressure	improvements.	discussions & writing
	P2 3.5 Pressure on	Apply ideas of pressure to	-	(SMSC)
	solids	different situations	Analysis and evaluation	L: Collaboration &
			Present observations and data	contribution to group
		Describe what is meant by a	using appropriate methods,	discussions (SMSC)
	P2 3.6 Turning	moment	including tables and graphs.	L: Identify ideas &
	forces	Calculate the moment of a force	Interpret observations and	supporting evidence in
			data, including identifying	text (SMSC)
			patterns and using	L: Well-developed, linked
		Compare the layers of the Earth	observations, measurements	paragraphs
	C2 4.1 The Earth	Describe the composition of the	and data to draw conclusions.	L: Use of correct form
Structure	and its atmosphere	atmosphere	Present reasoned explanations,	in a range of writing
of the			including explaining data in	styles & text, including
Earth		Explain 2 properties of	relation to predictions and	info relevant to audience
	C2 4.2 Sedimentary	sedimentary rocks	hypotheses	(SMSC)
	rocks	Explain how sedimentary rocks		
		are made	Measurement	
			Understand and use SI units	
		Compare the ways that igneous	and IUPAC (International	
	C2 4.3 Igneous and	and metamorphic rocks form	Union of Pure and Applied	
	metamorphic rocks	Explain how igneous and	Chemistry) chemical	
		metamorphic rocks form	nomenclature	

C2 4.4 The rock cycle C2 4.5 The carbon cycle	Use the rock cycle to explain how the material in rocks is recycled Explain why the concentration of carbon dioxide did not change for many years Use the carbon cycle to identify stores of carbon	Use and derive simple equations and carry out appropriate calculations Undertake basic data analysis including simple statistical techniques.	
C2 4.6 Climate change	Explain why global warming happens Explain some impacts of global warming		
C2 4.7 Recycling	Explain how aluminium is recycled Analyse the advantages of disadvantages of recycling		