Hugh Sexey C of E Middle School

Science Tower of Learning – Whole School

		Year 5 Developing	Year 5 Secure	Year 5 Greater Depth
		Y6 Not Accessing ARE	Year 6 Developing	Year 6 Secure
			Y7 Not Accessing ARE	
	AO1 – Biology (Recall)	• I can identify that humans and some other animals have skeletons and muscles for support, protection and movement (Y3) • I can identify that animals, including humans need the right types and amounts of nutrition (Y3) • I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers (Y3) • I can explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal (Y3) • I can identify that animals, including humans, need the right types and amounts of nutrition and they cannot make their own food; they get nutrition from what they eat (Y3) • I can describe in simple terms how fossils are formed when things that have lived are trapped within rock (Y3) • I can describe simple functions of the basic parts of the digestive system in humans (Y4) • I can recognise that living things can be grouped into a variety of ways (Y4)	• I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird • I can describe the life process of reproduction in some animals • I can describe the changes as humans develop to old age • I can describe the life process of reproduction in some plants	• I can identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. • I can describe the ways in which nutrients are transported within animals, including humans. • I can describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals.
	AO2 – Biology (Apply)	• I can investigate the way in which water is transported in plants (Y3) • I can explore the requirements of plants for life and growth (air, light, water, nutrients from soil and room to grow) and how they vary from plant to plant (Y3) • I can explore and use classification keys to help group, identify and name a variety of living things in my local and wider environment (Y4) • I can construct and interpret a variety of food chains, identifying producers, predators and prey (Y4) • I can recognise that environments can change and that this can sometimes pose dangers to living things (Y4)	• I can name, locate and describe the functions of the main parts of a plant, including those involved in reproduction	• I can recognise the impact of diet, exercise, drugs and lifestyle on the way the human body functions. • I can give reasons for classifying plants and animals based on specific characteristics. • I can identify how plants and animals are adapted to suit their environment in different ways and that adaptation may lead to evolution. • I can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. • I can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.
	AO3 – Biology (Practical)	• I can ask relevant questions and use different types of scientific enquiries to answer them (LKS2) • I can set up simple practical enquiries, comparative and fair tests (LKS2) • I can make systematic and careful observations and where appropriate take accurate measurements using standard units, using a range of equipment including thermometers and dataloggers (LKS2) • I can gather, record, classify and present data in a variety of ways to help in answering questions. (LKS2) • I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. (LKS2) • I can identify differences, similarities and changes to simple scientific ideas and processes (LKS2) • I can use straightforward scientific evidence to answer questions or to support my findings (LKS2) • I can report on findings from enquiries including oral and written explanations, displays or presentations of results and conclusions (LKS2)	• I can plan different types of scientific enquiries to answer questions, including recognising and controlling variable where necessary (UKS2) • I can take measurements using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate (UKS2) • I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. (UKS2) • I can identify scientific evidence that has been used to support of refute ideas or arguments. (UKS2) • I can report or present findings from enquiries including conclusions, causal relationships and explanations of results. (UKS2) • I can use test results to make predictions and set up further comparative and fair tests. (UKS2)	• I can plan different types of scientific enquiries to answer questions, including recognising and controlling variable where necessary. (UKS2) • I can take measurements using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate. (UKS2) • I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. (UKS2) • I can identify scientific evidence that has been used to support of refute ideas or arguments. (UKS2) • I can report or present findings from enquiries including conclusions, causal relationships and explanations of results. (UKS2) • I can use test results to make predictions and set up further comparative and fair tests. (UKS2)

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		• I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. (LKS2)		

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		Year 5 Developing Y6 Not Accessing ARE	Year 5 Secure Year 6 Developing Y7 Not Accessing ARE	Year 5 Greater Depth Year 6 Secure Year 7 Developing Y8 Not Accessing ARE
GE1	AO1 – Chemistry (Recall)	• I can recognise some conductors and insulators, and associate metals with being good conductors (Y4)	• I know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution. • I can explain that some changes result in the formation of new materials and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda	**NO CHEMISTRY ON Y6 CURRICULUM**
GE2	AO2 – Chemistry (Apply)	• I can compare and group together different kinds of rock on the basis or their appearance and simple physical properties (Y3) • I can compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials (Y3) • I can compare and group materials together, according to whether they are solids, liquids or gases (Y4) • I can observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) (Y4) • I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature (Y4)	• I can compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. • I can give reasons, based on evidence, from comparative and fair tests, for the particular uses of everyday materials, including metals, woods and plastics. • I can use knowledge of solids, liquids and gases to decide how mixtures might be separated including through filtering, sieving and evaporating. • I can demonstrate the dissolving, mixing and changes of state are reversible changes.	
GE3	AO3 – Chemistry (Practical)	• I can ask relevant questions and use different types of scientific enquiries to answer them (LKS2) • I can set up simple practical enquiries, comparative and fair tests (LKS2) • I can make systematic and careful observations and where appropriate take accurate measurements using standard units, using a range of equipment including thermometers and dataloggers (LKS2) • I can gather, record, classify and present data in a variety of ways to help in answering questions. (LKS2) • I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. (LKS2) • I can identify differences, similarities and changes to simple scientific ideas and processes (LKS2) • I can use straightforward scientific evidence to answer questions or to support my findings (LKS2) • I can report on findings from enquiries including oral and written explanations, displays or presentations of results and conclusions (LKS2) • I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. (LKS2)	• I can plan different types of scientific enquiries to answer questions, including recognising and controlling variable where necessary (UKS2) • I can take measurements using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate (UKS2) • I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. (UKS2) • I can identify scientific evidence that has been used to support of refute ideas or arguments. (UKS2) • I can report or present findings from enquiries including conclusions, causal relationships and explanations of results. (UKS2) • I can use test results to make predictions and set up further comparative and fair tests. (UKS2)	• I can plan different types of scientific enquiries to answer questions, including recognising and controlling variable where necessary (UKS2) • I can take measurements using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate (UKS2) • I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. (UKS2) • I can identify scientific evidence that has been used to support of refute ideas or arguments. (UKS2) • I can report or present findings from enquiries including conclusions, causal relationships and explanations of results. (UKS2) • I can use test results to make predictions and set up further comparative and fair tests. (UKS2)
GE4	AO1 – Physics (Recall)	• I can notice that light is reflected from surfaces (Y3) • I can recognise that shadows are formed when the light from a light source is blocked by a solid object (Y3) • I can identify how sounds are mad, associating some of them with something vibrating (Y4) • I can recognise that vibrations from sounds travel through a medium to the ear (Y4) • I can find patterns between the pitch of a sound and features of the object that produced it (Y4)	• I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the earth and the falling object • I can recognise that some mechanisms, including levers, pulleys and gears, allow a smaller forces to have a greater effect. • I can describe the movement of the Earth, and other planets, relative to the Sun in the solar system • I can describe the movement of the Moon relative to the Earth.	• I can recognise that light appears to travel in straight lines. • I can use the idea that light travels in straight lines to explain that objects are seen because light travels from light sources to our eyes or from light sources to objects and then to our eyes. • I can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.

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		• I can find patterns between the volume of a sound and the strength of the vibrations that produced it (Y4) • I can recognise that sounds get fainter as the distance from the sound source increases (Y4) • I can recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. (Y4)	• I can describe the Sun, Earth and Moon as approximately spherical bodies.	
PCRE1	AO2 – Physics (Apply)	• I can find patterns in the way that the size of the shadows change (Y3) • I can notice that some forces need contact between two objects but magnetic forces can act at a distance (Y3) • I can observe how magnets attract or repel each other and attract some materials but not others (Y3) • I can predict whether two magnets will attract or repel each other depending on which poles are facing one another (Y3) • I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers (Y4) • I can 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 without a battery (Y4)	• I can identify the effects of air resistance, water resistance and friction that act between moving surfaces. • I can use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky.	• I can use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. • I can 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. • I can use recognised symbols when representing a simple circuit in a diagram.
PCRE2	AO3 – Physics (Practical)	• I can ask relevant questions and use different types of scientific enquiries to answer them (LKS2) • I can set up simple practical enquiries, comparative and fair tests (LKS2) • I can make systematic and careful observations and where appropriate take accurate measurements using standard units, using a range of equipment including thermometers and dataloggers (LKS2) • I can gather, record, classify and present data in a variety of ways to help in answering questions. (LKS2) • I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. (LKS2) • I can identify differences, similarities and changes to simple scientific ideas and processes (LKS2) • I can use straightforward scientific evidence to answer questions or to support my findings (LKS2) • I can report on findings from enquiries including oral and written explanations, displays or presentations of results and conclusions (LKS2) • I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. (LKS2)	• I can plan different types of scientific enquiries to answer questions, including recognising and controlling variable where necessary (UKS2) • I can take measurements using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate (UKS2) • I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. (UKS2) • I can identify scientific evidence that has been used to support of refute ideas or arguments. (UKS2) • I can report or present findings from enquiries including conclusions, causal relationships and explanations of results. (UKS2) • I can use test results to make predictions and set up further comparative and fair tests. (UKS2)	• I can plan different types of scientific enquiries to answer questions, including recognising and controlling variable where necessary (UKS2) • I can take measurements using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate (UKS2) • I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. (UKS2) • I can identify scientific evidence that has been used to support of refute ideas or arguments. (UKS2) • I can report or present findings from enquiries including conclusions, causal relationships and explanations of results. (UKS2) • I can use test results to make predictions and set up further comparative and fair tests. (UKS2)