Curriculum Progression Document

Science - Upper Key Stage 2

Years 5 and 6

Animals Including Humans

Skills Objectives	Knowledge Objectives
• Identify scientific evidence that has been used to support or refute ideas or arguments. • Plan different types of scientific enquires to answer questions, including recognising and controlling variables where necessary. • Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.	• Describe the ways in which nutrients and water are transported within animals, including humans. • Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. • Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.

Key Concepts and Vocabulary

Evidence	**Variable**	Heart Rate	Intestine
Research	**Control**	Circulation System	Digestion
Support	**Tables**	Vein	Skeleton
Refute	**Line Graphs**	Artery	Muscle
			Stomach

Living Things and Their Habitats

Skills Objectives	Knowledge Objectives
• Identify scientific evidence that has been used to support or refute ideas or arguments. • Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. • Report and present findings from enquires, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.	• Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. • Describe the life processes of reproduction in some plants and animals. • Learn about the work of an inspiring scientist in this field • Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. Give reasons for classifying plants and animals based on specific characteristics.

Key Concepts and Vocabulary

Scientific illustrations	Root cuttings	Reproduction	Jane Goodall
Key	Tuber	Sexual and Asexual	David Attenborough
Label	Bulb	Classification	Naturalist
Causal	Seed	Kingdom, class, species	Animal Behaviourist
Degree of Trust	Stamen (male) : anther, filament		Carl Linnaeus (creator of the classification of living things)
Classification Key	Carpel(female) :stigma, style ovary		

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Evolution and Inheritance

Skills Objectives	Knowledge Objectives
• Identify scientific evidence that has been used to support or refute ideas or arguments. • Report and present findings from enquires, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.	• Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago • Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. • Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

Key Concepts and Vocabulary

Evidence	Evolve	Inheritance	Palaeontologist
Proof	Vary	Natural selection	Mary Anning
Enquiry	Adapt	Genetic mutation	Charles Darwin
	Environment		Alfred Wallace
	Evolution		

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Properties and Changes of Materials

Skills Objectives	Knowledge Objectives
• Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. • Report and present findings from enquires, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. • Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. • Use test results to make predictions to set up further comparative and fair tests.	• 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. • Demonstrate that dissolving, mixing and changes of state are reversible changes. • 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. • Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. • Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. • Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.
Key Concepts and Vocabulary	

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Measurement	Conductivity	Dissolve	Solid
Repeated measurement for:	Solubility	Solution	Liquid
Precision and Accuracy	Air	Melt	Gas
Casual Relationships	Oxygen	Freeze	Substance
	Water	Boil	Reversible
	Condensation	Evaporate	Irreversible
	Humidity	Condense	Separate
		Changing State	

Forces

Skills Objectives	Knowledge Objectives
• Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. • Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. • Use test results to make predictions to set up further comparative and fair tests.	• Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. • Identify the effects of air resistance, water resistance and friction that act between moving surfaces. • Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

Key Concepts and Vocabulary		
Newtons	Gravity	Push/Pull/Twist Forces
Mass	Friction	Air/Water Resistance
Weight		

Earth and Space

Skills Objectives	Knowledge Objectives
• Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. • Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.	• Describe the movement of the Earth, and other planets, relative to the Sun in the solar system. • Describe the movement of the Moon relative to the Earth. • Describe the Sun, Earth and Moon as approximately spherical bodies. • Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.
Key Concepts and Vocabulary	
Planet Satellite Moon	Orbit Escape Velocity Sphere

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Light

Skills Objectives	Knowledge Objectives
• Plan different types of scientific enquires to answer questions, including recognising and controlling variables where necessary. • Identify scientific evidence that has been used to support or refute ideas or arguments. • Report and present findings from enquires, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.	• Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. • Recognise that light appears to travel in straight lines. • Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. • Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.

Key Concepts and Vocabulary

Absorb	Light beam	Shadow
Refract	Reflect	Light
	Transparent	Source
	Opaque	Reflector

Electricity

Skills Objectives	Knowledge Objectives
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Key Concepts and Vocabulary

Circuit	Buzzer	Battery	Insulate
Switch	Bulb	Safety	Conduct