Year 5 Science Curriculum Overview
Based on White Rose Science Scheme (To be read alongside the National Curriculum)

Year 5 Autumn	Autumn 1	Autumn 2	National Curriculum
	Space	**Forces** **Sustainability: Global Warming**	**Earth and space** • 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 **Forces** • 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
Disciplinary knowledge (How are you teaching it?) **(Skills)**	• Record data using scientific diagrams • Identify scientific evidence that has been used to support or refute ideas or arguments • Report and present findings from enquiries, including conclusion	• Plan scientific enquiries to answer questions • Take measurements, using a range of scientific equipment • Make systematic and careful observations • Gather, record, classify and present data in a variety of ways to help answer questions	
Substantive knowledge (What are you teaching? /what are children learning?) **(Knowledge)**	• 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	• 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 • Explain global warming and identify ways to reduce it	

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Year 5 Spring	Spring 1	Spring 2	National Curriculum
	Properties of Materials **Reversible and Irreversible Changes**	**Reversible and Irreversible Changes** **Life Cycles**	**Properties and changes of materials** • 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 • 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 • Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic • 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 **Living things and their habitats** • Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird
Disciplinary knowledge (How are you teaching it?) **(Skills)**	• Plan scientific enquiries to answer questions • Independently ask scientific questions • Make decisions for a fair test • Identify patterns and relationships between materials • Record and present data using line graphs and tables • Communicate findings using scientific language in conclusions	• Independently ask scientific questions • Make careful observations of materials and their changes • Use practical resources to answer questions • Carry out a fair test • Record data using tables and graphs	
Substantive knowledge (What are you teaching? /what are children learning?) **(Knowledge)**	• Compare and group together everyday materials based on their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets • 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) • Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature • 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 • Demonstrate that dissolving, mixing and changes of state are reversible changes • Explain some changes result in the formation of new materials, that this kind of change is not usually reversible, changes associated with burning and the action of acid with bicarbonate of soda • Understand and explain the life cycles mammals, amphibians, insects and birds	

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Year 5 Summer	Summer 1	Summer 2	National Curriculum
	Reproduction A **Sustainability - Plastic pollution**	**Animals including humans** **Reproduction B**	**Living things and their habitats** • Describe the life process of reproduction in some plants and animals • Find out about different types of reproduction, including sexual and asexual reproduction in plants, and sexual reproduction in animals **Animals, including humans** • Describe the changes as humans develop to old age • Draw a timeline to indicate stages in the growth and development of humans. • Learn about the changes experienced in puberty.
Disciplinary knowledge (How are you teaching it?) **(Skills)**	• Gather evidence to answer questions • Answer questions based on observations • Report and present findings from enquiries • Communicate findings using specific language	• Ask and answer scientific questions • Look for patterns and identify changes in humans • Record and present evidence • Make conclusions based on evidence	
Substantive knowledge (What are you teaching? /what are children learning?) **(Knowledge)**	• Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird • Explain the life process of reproduction in some plants and animals • Understand the difference between sexual and asexual reproduction • Understand sexual reproduction in mammals • Identify reproductive parts in plants • Explain pollination in plants • Explore how to clone and reproduce plants • Explain plastic pollution and the impact on the planet	• Name the different stages of the human life cycle and explain changes that happen in late adulthood • Explain changes that take place to the body during puberty • Draw conclusions from data relating, for example, to the length or weight of a baby during its first year of life • Understand most animals reproduce sexually • Understand the gestation periods of mammals and lifespan • Explain findings from cloning plants	