Progression Document for KS2 Science

Unit: Materials: Mixtures and Separation					
Big Question	**National Curriculum Links**	**Core Knowledge**	**Disciplinary Knowledge**	**Key Vocabulary**	**Outcomes**
How can we separate different mixtures?	Compare and group materials according to their properties, understand that some materials dissolve to form solutions, describe how to recover substances from solutions, use knowledge of solids, liquids and gases to decide how mixtures can be separated, demonstrate that dissolving and mixing can be reversible changes, plan comparative and fair tests, take measurements, record data and draw conclusions.	A mixture contains two or more substances, some substances dissolve to form solutions, soluble and insoluble substances behave differently, mixtures can be separated using sieving, filtering, magnets and evaporation, temperature can affect the rate of dissolving.	Research mixtures, ask testable questions, select appropriate enquiry types, identify variables, plan comparative tests, take accurate measurements, record observations, analyse results and draw conclusions.	mixture, solution, dissolve, soluble, insoluble, sieving, filtering, evaporation, variable, separation	Explain and select appropriate methods for separating mixtures and solutions, using scientific investigations to support conclusions.
Unit: Materials: Properties and Changes					
Big Question	**National Curriculum Links**	**Core Knowledge**	**Disciplinary Knowledge**	**Key Vocabulary**	**Outcomes**
How do the properties of materials affect how they are used and changed?	Compare and group materials according to their properties, give reasons for the uses of materials, demonstrate reversible changes, explain that some changes form new materials and are irreversible, plan enquiries, control variables, take accurate measurements, record data and draw conclusions.	Materials have different levels of hardness and transparency, materials conduct heat and electricity differently, properties determine suitable uses, some changes are reversible, irreversible changes create new materials, burning, rusting and some mixing are irreversible changes.	Plan investigations, identify and control variables, make predictions, measure accurately, record results systematically, evaluate methods, analyse observations, use evidence to draw conclusions.	hardness, transparency, conductor, conductivity, thermal, electrical, reversible, irreversible, burning, rusting	Compare materials using their properties, explain their suitability for different uses and identify and explain reversible and irreversible changes.
Unit: Forces and Space: Earth and Space					
Big Question	**National Curriculum Links**	**Core Knowledge**	**Disciplinary Knowledge**	**Key Vocabulary**	**Outcomes**
How do the Earth, Moon and planets move in space?	Describe the movement of the Earth and other planets relative to the Sun, describe the movement of the Moon relative to Earth, describe the Sun, Earth and Moon as approximately spherical bodies, explain day and night using Earth's rotation, plan enquiries, use models, record data, identify patterns and draw conclusions.	The Solar System is heliocentric, planets orbit the Sun, gravity keeps planets in orbit, the Moon orbits Earth, Earth's rotation causes day and night, Earth's tilt and orbit cause seasons, satellites have a range of uses.	Pose testable questions, use and evaluate models, collect and record data, draw scientific diagrams, identify patterns, make predictions, calibrate and use a sundial, analyse data and draw conclusions.	orbit, rotation, planet, satellite, celestial, heliocentric, geocentric, gravity, spherical, Solar System	Explain the movements of the Earth, Moon and planets, using scientific models to explain day, night and the seasons.

Unit: Living Things: Life Cycles and Reproduction					
Big Question	**National Curriculum Links**	**Core Knowledge**	**Disciplinary Knowledge**	**Key Vocabulary**	**Outcomes**
How do living things reproduce and change through their life cycles?	Describe differences in the life cycles of mammals, amphibians, insects and birds, describe reproduction in some plants and animals, describe how living things are classified, plan scientific enquiries, make observations, record data, identify patterns and draw conclusions.	Living things have life cycles, life cycles vary between animal groups, animals reproduce sexually, plants can reproduce sexually and asexually, flowering plants use pollination and fertilisation, some plants reproduce using bulbs, runners or cuttings.	Observe and compare life cycles, identify patterns, use secondary sources, plan investigations, make accurate observations, record and present data, compare reproductive processes, use evidence to draw conclusions.	reproduction, sexual, asexual, pollination, fertilisation, germination, metamorphosis, life cycle, offspring, gestation	Compare the life cycles of different living things and explain how plants and animals reproduce.
Unit: Forces and Space: Unbalanced Forces					
Big Question	**National Curriculum Links**	**Core Knowledge**	**Disciplinary Knowledge**	**Key Vocabulary**	**Outcomes**
How do forces affect the movement of objects?	Explain that unsupported objects fall due to gravity, identify the effects of air resistance, water resistance and friction, recognise that mechanisms can allow a smaller force to have a greater effect, plan scientific enquiries, control variables, take accurate measurements, record data and draw conclusions.	Forces can be balanced or unbalanced, unbalanced forces change an object's motion, gravity pulls objects towards Earth, friction opposes movement, air and water resistance are types of friction, levers and pulleys can increase the effect of a force.	Plan fair tests, identify and control variables, make predictions, measure forces accurately, record and present data, identify patterns, evaluate methods, use evidence to draw conclusions.	force, gravity, friction, resistance, balanced, unbalanced, lever, pulley, Newton, motion	Explain how balanced and unbalanced forces affect movement and investigate how gravity, friction and resistance act on objects.
Unit: Animals, Including Humans: Human Timeline					
Big Question	**National Curriculum Links**	**Core Knowledge**	**Disciplinary Knowledge**	**Key Vocabulary**	**Outcomes**
How do humans grow and change throughout their lives?	Describe the changes as humans develop to old age, identify stages of human development, use scientific evidence to support ideas, plan enquiries, take measurements, record and present data, identify patterns and draw conclusions.	Humans develop through stages from infancy to old age, babies grow rapidly during early development, puberty causes physical and emotional changes, gestation is the period of development before birth, ageing causes changes to the human body.	Ask scientific questions, research using reliable secondary sources, measure accurately, collect and present data, identify patterns and relationships, compare evidence, draw conclusions and evaluate findings.	gestation, foetus, infancy, childhood, adolescence, puberty, adulthood, development, growth, ageing	Describe and explain the stages of human development from conception to old age, using scientific evidence and data to identify patterns.
Unit: Making Connections: How Does Light Affect the Direction of Plant Growth?					
Big Question	**National Curriculum Links**	**Core Knowledge**	**Disciplinary Knowledge**	**Key Vocabulary**	**Outcomes**
How does light affect the direction in which plants grow?	Describe reproduction and life cycles in plants, recognise adaptation and inheritance, use knowledge of electrical circuits, plan scientific enquiries, recognise and control variables, take accurate measurements, record and analyse data, report findings and evaluate investigations.	Plants need light for healthy growth, plants respond to the direction of light, phototropism causes shoots to grow towards light, this response helps plants access light for photosynthesis, phototropism is an adaptation that can be inherited.	Plan a comparative test, identify and control variables, make predictions, collect accurate observations, record and analyse data, identify patterns, draw conclusions, evaluate the reliability of results.	phototropism, adaptation, inheritance, variable, control, prediction, observation, data, conclusion, evaluation	Carry out a complete scientific enquiry to investigate how the direction of light affects plant growth, using evidence to draw and evaluate conclusions.