Knowsley Junior School

Science Skills and Knowledge in Year 5

National Curriculum objectives: In this unit, children will be taught to:

Working Scientifically

Pupils should be able to:

- Plan different types of scientific enquiries, identifying variables and controlling them where appropriate.
- Take accurate measurements using a variety of scientific equipment, repeating readings when necessary.
- Record data and results using labelled diagrams, classification keys, tables, scatter graphs, bar and line graphs.
- Use results to make predictions and plan further comparative or fair tests.
- Report and present findings, including conclusions, causal relationships, and explanations of the reliability of results, using oral, written, and display formats.
- Identify and explain scientific evidence that supports or refutes ideas.
- Generate their own questions and systematically explore functions, relationships, and interactions.
- Recognise that scientific ideas develop and change over time.
- Draw conclusions based on data and observations, using evidence to justify ideas and explain findings.
- Read, spell, and pronounce scientific vocabulary correctly.

Developing Our Science Skills

- Create higher-level questions that deepen scientific understanding.
- Select the most appropriate type of enquiry for an investigation.
- Make predictions supported by scientific knowledge.
- Write detailed instructions for investigations.
- Construct accurate tables suitable for recording results.
- Sort and classify items using Carroll diagrams.
- Suggest possible uses for scientific equipment.
- Draw labelled scientific diagrams accurately.
- Present data neatly using graph paper.
- Write conclusions that reference scientific knowledge.

Earth and Space

- Describe the movement of the Earth and other planets relative to the Sun.
- Describe the movement of the Moon relative to the Earth.
- Explain that the Sun, Earth, and Moon are approximately spherical.
- Use Earth's rotation to explain day and night and the apparent movement of the Sun across the sky.
- Identify the Sun as a star at the centre of the solar system and name its eight planets.
- Explain that a moon is a celestial body orbiting a planet and give examples (Earth: 1 moon; Jupiter: 4 large moons plus smaller ones).
- Describe Brian Cox's contributions to our understanding of space.

Healthy Eating

- Describe the main parts of the human digestive system and their functions.
- Explain why a balanced diet is needed for a healthy body.
- Explore and describe W. K. Kellogg's contributions to nutrition science.

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	Forces • Explain that unsupported objects fall due to the force of gravity acting between Earth and the object. • Identify the effects of air resistance, water resistance, and friction on moving objects. • Explain how levers, pulleys, and gears allow a smaller force to have a greater effect. • Investigate air resistance by observing how objects such as parachutes or sycamore seeds fall. • Investigate friction by observing how it slows or stops moving objects. • Describe the contributions of Galileo Galilei and Isaac Newton to the understanding of gravity. **Properties of Materials** • Compare and group everyday materials based on properties such as hardness, solubility, transparency, conductivity (thermal/electrical), and magnetism. • Explain, using evidence from investigations, why certain materials are suitable for specific purposes (e.g., metals, wood, plastics). • Describe how some materials dissolve in liquids to form solutions and how to recover substances from solutions. • Suggest methods for separating mixtures based on knowledge of solids, liquids, and gases (filtering, sieving, evaporating). • Describe the contributions of Madame C.K. Walker, Spencer Silver, Ruth Benerito, and Harry Brearley. **Life Cycles** • Describe differences in the life cycles of mammals, amphibians, insects, and birds. • Describe the process of reproduction in plants and animals. • Investigate different types of reproduction: sexual and asexual in plants, sexual in animals.

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	• Explore the work of naturalists and animal behaviourists, including Jane Goodall. • Describe human development from birth to old age. • Draw a timeline to show stages in human growth and development.