Scarcliffe Primary School

Subject Specific Curriculum Intent – Science (V4)

What is Science?: Making sense of, and being curious about, the world around us – including living and non-living things.

Science relates to our 'questioning and curiosity' and 'critical thinking and open-mindedness' core abilities.

What is the curriculum INTENT for this area of the curriculum?	Rationale – Why is this what you want <u>our</u> children to know?
1. Ask scientific questions and gain curiosity about the world. 2. To work scientifically – making predictions, planning and carrying out fair tests, presenting results and drawing conclusions. 3. To have a growing knowledge about the work of key scientists and the fields they worked in. 4. To gain and apply statistical knowledge when presenting data. 5. Have a secure knowledge of the primary curriculum (including biology, chemistry and physics).	1. To build on children's natural ***curiosity (core ability)*** and for them to acquire a growing understanding of the world around them. 2. To promote ***critical thinking (core ability)*** and draw accurate conclusions. 3. To promote future jobs and ambitions in the field of STEM. 4. To use and apply maths skills to real-life situations to form schema. 5. To prepare our children with the required knowledge for life in an increasingly scientific and technological world – today and in the future.

	Class 1	Class 2	Class 3	Class 4
A. Working Scientifically **(disciplinary knowledge)**	1. Children know about similarities and differences in relation to places, objects, materials and living things. 2. They talk about the features of their own immediate environment and how environments might vary from one another. 3. They make observations of animals and plants and explain why some things occur, and talk about changes. 4. They make simple predictions about what might happen.	5. Ask simple questions and recognise that they can be answered in different ways. 6. Observe closely using simple equipment. 7. Perform simple tests. 8. Identify and classify. 9. Use observations and ideas to suggest answers to questions. 10. Gather and record data to help in answering questions.	11. Ask relevant questions and use different types of scientific enquiries to answer them. 12. Set up simple practical enquiries, comparative and fair tests. 13. Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. 14. Gather, record, classify and present data in a variety of ways to help in answering questions. 15. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. 16. Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. 17. Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. 18. Identify differences, similarities or changes related to simple scientific ideas and processes. 19. Use straightforward scientific evidence to answer questions or to support their findings.	20. Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. 21. Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. 22. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. 23. Use test results to make predictions to set up further comparative and fair tests. 24. Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. 25. Identify scientific evidence that has been used to support or refute ideas or arguments.

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<tr><td>B. Knowledge of Scientists</td><td>What is a scientist and what do they do?</td><td>John Dunlop
Charles Macintosh
John McAdam</td><td>Benjamin Franklin
Thomas Edison
Alexander Graham Bell
Archimedes</td><td>Galileo
Isaac Newton
Ptolemy
Copernicus
Spencer Silver / Ruth Benerito
David Attenborough / Jane Goodall
Helen Sharman / Tim Peake

Charles Darwin
Carl Linnaeus
Mary Anning
Alfred Wallace</td></tr>
<tr><td>C. Statistics – taken from National Curriculum for Maths.</td><td>1. Tally charts and pictograms (whole numbers).

2. Carry out simple sorting activities.</td><td>3. Tally charts, simple tables, pictograms and block diagrams (early bar chart).

4. Sort items using Venn diagrams.</td><td>5. Bar charts, pictograms and tables.
6. Introduce simple line graphs for continuous data.

7. Sort items on Carroll Diagrams.</td><td>8. Complex tables, line graphs, pie charts and mean average.

9. Select ways of sorting items.</td></tr>
<tr><td>Breadth of Study</td><td>See Development Matters – UTW and the KS1 National Curriculum

<u>Year 1 Programme of Study:</u>
Plants
Animals, including humans
Everyday materials
Seasonal changes</td><td><u>Year 2 Programme of Study:</u>
Living things and their habitats
Plants
Animals, including humans
Uses of everyday materials

<u>Year 3 Programme of Study:</u>
Plants
Animals, including humans
Rocks
Light
Forces and magnets</td><td><u>Year 4 Programme of Study:</u>
Living things and their habitats
Animals, including humans
States of matter
Sound
Electricity

<u>Year 5 Programme of Study: (Split Year group)</u>
Living things and their habitats
Animals, including humans
Properties and changes of materials
Earth and space
Forces</td><td><u>Year 5 Programme of Study: (Split year group)</u>
Living things and their habitats
Animals, including humans
Properties and changes of materials
Earth and space
Forces

<u>Year 6 Programme of Study:</u>
Living things and their habitats
Animals, including humans
Evolution and inheritance
Light
Electricity</td></tr>
<tr><td>D. Early Years</td><td colspan="2">Statements from Development Matters</td><td colspan="3">Statements from the Early Learning Goals (EYFS Statutory Framework)</td></tr>
<tr><td></td><td>Communication and Language</td><td>1. Ask questions to find out more and to check what has been said to them (ongoing).
2. Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen (ongoing).</td><td>Communication and Language</td><td>Listening, Attention and Understanding</td><td>3. Make comments about what they have heard and ask questions to clarify their understanding (ongoing).</td></tr>
<tr><td></td><td>Personal, Social and Emotional Development</td><td>4. Know and talk about the different factors that support their overall health and wellbeing:
a. regular physical activity
b. healthy eating
c. toothbrushing
d. sensible amounts of ‘screen time’
e. having a good sleep routine being a safe pedestrian</td><td>Personal, Social and Emotional Development</td><td>Managing Self</td><td>5. Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.</td></tr>
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	Understanding the World	6. Explore the natural world around them (CP – outdoor learning environment). 7. Describe what they see, hear and feel while they are outside (CP – nature tray). 8. Understand the effect of changing seasons on the natural world around them (CP – outdoor learning areas – particularly the garden area).	Understanding the World	The Natural World	9. Explore the natural world around them, making observations and drawing pictures of animals and plants. 10. Understand some important processes and changes in the natural world around them, including the seasons and **changing states of matter****. (** taught as part of the seaside unit – linked to ice creams as well as through the outdoor learning environment – where does the snow / ice / puddles go?)

Implementation

- Science will be taught as a discrete subject.
- It will be planned on a two year rolling programme.
- It will be delivered once per week.
- There will be separate Science books.
- Units will be structured using: title page, pre learning activity (such as a mind map), vocabulary builder and learning journey.
- 'Working scientifically' should not be taught as a separate unit but embedded within each unit (the National Curriculum for Science give examples at the beginning of each key stage).
- Units will include learning about key scientists where appropriate.
- Flashbacks will be included frequently to encourage children to recall prior key knowledge.
- Knowledge builders to be considered by the subject leader as a teaching aid – particularly when planning flashbacks. Knowledge builders to be used to aid children's reading, spelling and pronunciation of scientific vocabulary, consistent with their reading and spelling knowledge.
- In the term when science is not delivered, the session will become a computing unit.
- Teachers will build on prior knowledge. Within each key stage we can be flexible when we introduce content (so long as it is taught by the end of the key stage).
- Schools are required to set out their school curriculum for science on a year-by-year basis and make this information available online.