**Nether Stowey CE VC Primary School**
**Progression of skills:**
**Subject: Science**

| Year R | ask scientific questions | plan an enquiry | observe closely | gather/record results | interpret results | draw conclusions | make a prediction |
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| **Classifying** | Be able to ask a Yes/No questions to aid sorting | Identify the headings for the two groups (it is …., it is not ….) | | | Offer explanations for why things might happen. (Speaking ELG) | Express their ideas and feelings about their experiences using full sentences (Speaking ELG)<br><br>Thinking critically –making links (characteristics of effective learning) | Thinking critically – having their own ideas (characteristics of effective learning) |
| **Researching** | Ask one or two simple questions linked to a topic<br><br>Finding out and exploring; playing with what they know; being willing to 'have a go'. (characteristics of effective learning) | Creating and thinking critically – having their own ideas and choosing ways to do things (characteristics of effective learning) | Explore the natural world around them, making observations of animals and plants (Natural World ELG) | | | | |
| **Observing over time** | | | | draw pictures of animals and plants (Natural World ELG) | | | |
| **Pattern seeking** | | | Know some similarities and differences between the natural world around them and contrasting environments (Natural World ELG) | | | | |
| **Comparative /fair testing** | Playing and exploring – engagement finding out and exploring; playing with what they know; being willing to 'have a go'. (characteristics of effective learning) | | | | | | |

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| Year 1 | ask scientific questions | plan an enquiry | observe closely | take measurements | gather/record results | present results | interpret results | draw conclusions | make a prediction | evaluate an enquiry |
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| **Classifying** | Be able to ask a Yes/No questions to aid sorting | Identify the headings for the two groups (it is …., it is not ….) | | | | Sort objects and living things into two group using a basic Venn diagram | Talk about the number of objects in each group i.e. which has more or less | Children in KS1 are not expected to draw conclusions. They are expected to make observations which will help them to answer questions. They do not have the subject knowledge to give reasons for what they observe so they cannot draw scientific conclusions. | Children in KS1 are not expected to make scientific predictions as they do not have the subject knowledge to do this. That does not mean that you should not ask children what they think may happen, but this will be based on experience or may | Children in KS1 are not expected to evaluate. However, children should be encouraged to consider their method and adapt this where necessary. |
| **Researching** | Ask one or two simple questions linked to a topic | | | | | Present what they have learnt verbally | Be able to answer their questions verbally using simple sentences | | | |
| **Comparative / fair testing** | Identify the question to investigate from a range provided | Choose equipment to use and what to observe or measure in order to answer the question | Make observations linked to answering the question | When appropriate, measure using standard units where all the numbers are marked on the scale | Record data in simple prepared tables by taking photographs | Present what they learnt verbally | Answer their question in simple sentences using their observations | | | |
| **Observing over time** | Ask a question about what might happen in the future based on an observation | | | | | Present what they learnt verbally | | | | |

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| **Pattern seeking** | Ask a question that is looking for a pattern based on observations | | | | Record data in simple, prepared tables. | | | | simply be a guess. | |

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| **Year 2** | **ask scientific questions** | **plan an enquiry** | **observe closely** | **take measurements** | **gather/record results** | **present results** | **interpret results** | **draw conclusions** | **make a prediction** | **evaluate an enquiry** |
| **Classifying** | Be able to ask a Yes/No questions to aid sorting | Be able to compare objects based on obvious, observable features e.g. size, shape, colour, texture etc. | | | | Sort objects and living things into two group using a simple table | Talk about the number of objects in each group i.e. which has more or less | Children in KS1 are not expected to draw conclusions. They are expected to make observations which will help them to answer questions. They do not have the subject knowledge to give reasons for what they observe so they cannot draw scientific conclusions. | Children in KS1 are not expected to make scientific predictions as they do not have the subject knowledge to do this. That does not mean that you should not ask children what they think may happen, but this will be based on experience or may simply be a guess. | Children in KS1 are not expected to evaluate. However, children should be encouraged to consider their method and adapt this where necessary. |
| **Researching** | Ask one or two simple questions linked to a topic | | | | | Present what they have learnt using pictures | Be able to answer their questions using simple sentences | | | |
| **Comparative / fair testing** | Identify the question to investigate from a scenario | Choose equipment to use and decide what to do and what to observe or measure in order to answer the question | Make observations linked to answering the question | When appropriate, measure using standard units where all the numbers are marked on the scale | Record data in simple prepared tables - pictorially. | Present what they learnt using pictures | Answer their question in simple sentences using their observations or measurements. | | | |
| **Observing over time** | Ask a question about what might happen in the future based on an observation | | | | | Present what they learnt using pictures | | | | |
| **Pattern seeking** | Ask a question that is looking for a pattern based on observations | | | | Record data in simple, prepared tables and tally charts | Present what they learnt verbally | | | | |

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| **Year 3** | **ask scientific questions** | **plan an enquiry** | **observe closely** | **take measurements** | **gather/record results** | **present results** | **interpret results** | **draw conclusions** | **make a prediction** | **evaluate an enquiry** |
| **Classifying** | Be able to ask a range of Yes/No questions to aid sorting | Be able to put appropriate headings onto intersecting Venn and Carroll diagrams | | | | Sort objects and living things into groups using intersecting Venn and | Spot patterns in the data particularly two criteria with no examples e.g. there are no | Draw simple conclusions, when appropriate, for patterns e.g. a flying | | Suggest improvement e.g. a wider range of objects – only looked at |

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| | | | | | | Carroll diagrams | living things with wings and no legs | insect with no legs might always crash land | | British trees |
| **Researching** | | Choose a source from a range provided | | | | Present what they learnt verbally or using labelled pictures | Be able to answer their questions, starting to use simple scientific language | | | Suggest limitations e.g. only had one book. |
| **Comparative / fair testing** | Ask a range of questions linked to a topic | Decide what to change and what to measure or observe | Make observations linked to answering the question | Measure using standard units where not all the numbers are marked on the scale. | Prepare own simple tables to record data | Present what they learnt using block diagrams | Refer directly to their evidence when answering their question | Where appropriate provide oral explanations for their findings. | Use results from an investigation to make a prediction about a further result | Suggest improvements e.g. to method of taking measurements. |
| **Observing over time** | | Decide what to measure or observe. | Make a range of relevant observations | Measure using standard units where not all the numbers are marked on the scale. Use dataloggers to measure over time. | | Present data in time graphs | | | | |
| **Pattern seeking** | | Decide what to measure or observe | Make observations linked to answering the question | Measure using standard units where not all the numbers are marked on the scale, and take repeat readings where necessary | | Use ICT package to present data as a scattergram | | | | |

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| **Year 4** | **ask scientific questions** | **plan an enquiry** | **observe closely** | **take measurements** | **gather/record results** | **present results** | **interpret results** | **draw conclusions** | **make a prediction** | **evaluate an enquiry** |
| **Classifying** | Be able to ask a range of Yes/No questions to aid sorting | Be able to compare objects based on more sophisticated, observable features. Present observations in labelled diagrams. | | | | Sort objects and living things into groups using intersecting Venn and Carroll diagrams | Spot patterns in the data particularly two criteria with no examples e.g. there are no living things with wings and no legs | Draw simple conclusions, when appropriate, for patterns e.g. a flying insect with no legs might always crash land | | Suggest new questions arising from the investigation. |
| **Researching** | Ask a range of questions linked to a topic | Choose a source from a wide range provided | | | | Present what they learnt verbally or using labelled diagrams | Be able to answer their questions using simple scientific language | | | Suggest new questions arising from the investigation |
| **Comparative / fair testing** | | Decide what to change and what to measure or observe | Make observations linked to answering the question | Measure using standard units where not all the numbers are marked on the scale, and take | Prepare own tables to record data | Present data in bar charts | Refer directly to their evidence when answering their question | Where appropriate provide written explanations for their | Use results from an investigation to make a prediction | Suggest new questions arising from the investigation. |

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| | | | | repeat readings where necessary. | | | | findings | about a further result | |
| **Observing over time** | | Decide what to measure or observe. Decide how often to take a measurement. | Make a range of relevant observations | Measure using standard units where not all the numbers are marked on the scale. Use dataloggers to measure over time. | | Present data in time graphs | | | | |
| **Pattern seeking** | | Decide what to measure or observe | Make observations linked to answering the question | Measure using standard units where not all the numbers are marked on the scale, and take repeat readings where necessary | | Use ICT package to present data as a scattergram | | | | |

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| Year 5 | ask scientific questions | plan an enquiry | observe closely | take measurements | gather/record results | present results | interpret results | draw conclusions | make a prediction | evaluate an enquiry |
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| **Classifying** | Be able to ask a range of Yes/No questions to aid sorting and decide which ways of sorting will give useful information | Identify specific clear questions that will help to sort without ambiguity | Be able to compare not only based on physical properties but also on knowledge gained through previous enquiry | | | Create branching databases (tree diagrams) and keys to enable others to name livings things and objects | Be able to talk about the features that objects and living things share and do not share based on the information in the key etc. | Be able to use data to show that livings things and materials that are grouped together have more things in common than with things in other groups | | Be able to explain using evidence that the branching database or classification key will only work for the living things or materials it was created for |
| **Researching** | Ask a range of questions recognising that some can be answered through research and others may not | Choose suitable sources to use | | | | Present what they learnt in a range of ways e.g. different graphic organisers | Be able to answer their questions using scientific evidence gained from a range of sources | | | Be able to talk about their degree of trust in the sources they used |
| **Comparative / fair testing** | Ask a range of questions and identify the type of enquiry that will help to answer the questions. | Recognise and control variables where necessary | Make a range of relevant observations linked to answering the question. | Measure using standard units using equipment that has scales involving decimals | Prepare own tables to record data, including columns for taking repeat readings | Choose an appropriate form of presentation | Be able to answer their question, describing causal relationships | Provide oral or written explanations for their findings | Use test results to make predictions for further investigations | Explain their degree of trust in their results e.g. precision in taking measurements and variables that may not have been controlled |
| **Observing over time** | | | | | Prepare own tables to record data | | Be able to answer their questions, describing the change over time | | | |
| **Pattern seeking** | | | | | | Choose an appropriate | Be able to answer their | | | |

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| | | | | | | form of presentation, including scatter graphs | questions identifying patterns | | | |

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| **Year 6** | **ask scientific questions** | **plan an enquiry** | **observe closely** | **take measurements** | **gather/record results** | **present results** | **interpret results** | **draw conclusions** | **make a prediction** | **evaluate an enquiry** |
| **Classifying** | Be able to ask a range of Yes/No questions to aid sorting and decide which ways of sorting will give useful information | Identify specific clear questions that will help to sort without ambiguity | Be able to compare not only based on physical properties but also on knowledge gained through previous enquiry | | | Create branching databases (tree diagrams) and keys to enable others to name livings things and objects | Be able to talk about the features that objects and living things share and do not share based on the information in the key etc. | Be able to use data to show that livings things and materials that are grouped together have more things in common than with things in other groups | | Be able to explain using evidence that the branching database or classification key will only work for the living things or materials it was created for |
| **Researching** | Ask a range of questions recognising that some can be answered through research and others may not | Choose suitable sources to use | | | | Present what they learnt in a range of ways e.g. different graphic organisers | Be able to answer their questions using scientific evidence gained from a range of sources | | | Be able to talk about their degree of trust in the sources they used |
| **Comparative / fair testing** | Ask a range of questions and identify the type of enquiry that will help to answer the questions. Ask further questions based on results. | Recognise and control variables where necessary | Make a range of relevant observations linked to answering the question. | Measure using standard units using equipment that has scales involving decimals | Prepare own tables to record data, including columns for taking repeat readings | Choose an appropriate form of presentation, including line graphs | Be able to answer their question, describing causal relationships | Provide written explanations for their findings | Use test results to make predictions for further investigations | Explain their degree of trust in their results e.g. precision in taking measurements, variables that may not have been controlled, and accuracy of results |
| **Observing over time** | | | | | Prepare own tables to record data | | Be able to answer their questions, describing the change over time | | | |
| **Pattern seeking** | | | | | | Choose an appropriate form of presentation, including scatter graphs | Be able to answer their questions identifying patterns | | | |