

LPDS National Curriculum Assessment Materials for Foundation Subjects





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Overview of the Materials

Written by the Lancashire Professional Development Service (LPDS) Teaching and Learning Consultants, these assessment materials are directly linked to the expectations of National Curriculum 2014 and will enable class teachers and senior leaders to track the progress and attainment of children against 'Scientific Knowledge and Conceptual Understanding and Working Scientifically Skills' in Science and against 'End of Year Expectations' in the Foundation Subjects.

These materials have been written to inform planning and support high quality teaching and learning across the primary phase whilst at the same time providing a simple and time effective method of assessing the learning of children from Years 1 to 6 in Science and the Foundation Subjects.

These materials are compatible with the Lancashire Electronic Tracking tool and include:

Foundation Subjects - End of Year Expectations

- ▶ Art and Design
- ▶ Computing
- ▶ Design and Technology
- ▶ Geography
- ▶ History
- ▶ Languages (KS2)
- ▶ Music
- ▶ Physical Education

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Overview of the **Materials**

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These materials have been written by Lancashire Professional Development Service (LPDS) Teaching and Learning Consultants for Primary Science, which remains a core subject, in conjunction with the aims and the end of age phase (KS1, lower KS2, upper KS2) statutory requirements for 'Year Group Scientific Knowledge and Conceptual Understanding and Working Scientifically Skills' set out in the National Curriculum 2014.

The scientific knowledge and conceptual understanding for each year group show the National Curriculum 2014 statutory requirements for each unit. These can be used to support the assessment of knowledge and concepts across the primary phase.

The 'working scientifically skills' for each year group are presented in two grids. In each grid, the titles of each column (the white text in the orange boxes) are the statutory requirements for the end of KS1, end of lower KS2 or the end of upper KS2.

The grids show the range of 'working scientifically' skills as follows:

Grid 1

- ▶ Exploring / Observing
- ▶ Grouping and Classifying
- ▶ Questioning
- ▶ Research
- ▶ Modelling
- ▶ Collaborating

Grid 2

- ▶ Planning and Testing
- ▶ Using Equipment and Measures
- ▶ Communicating
- ▶ Conclusions / Considering the evidence:
 - Describing Results
 - Explaining Results
 - Trusting Results

(Please note the 'Modelling' and 'Collaborating' columns are non-statutory but support effective provision).

These materials can be used to assess science skills in conjunction with any curriculum including the LPDS National Curriculum Support Materials.

The 'working scientifically skills' grids will assist teachers with their understanding of what the skills might look like in different year groups and thus support them in making their teacher assessment judgements against the statutory statements from the National Curriculum 2014.

The National Curriculum Programmes of Study for each year group and advice for good science teaching have been used to support teachers with what 'working scientifically' looks like for the different types of skill in each year group. These have been made into skills ladders so teachers can see how the learning for each year group fits within the larger picture of progression.

The skills ladders can be used to help teachers make a judgement during the year as to whether they are **on track** to achieve the end of year expectation and at the end of the year as to whether children have achieved the expectations for that year group.

A child may not achieve every single bullet point of learning - teachers should make a judgement on a child's strengths and weaknesses in relation to skill development. Greater emphasis should be placed on the statements that have been underlined. Key vocabulary for 'working scientifically' has been highlighted in bold text in each year to support its progression and use throughout the primary phase.



The detail in the grids can be used to help support planning but **it is the underlined statements and the titles for each column** which provide a summary against which teachers can make an end of term / end of year judgement. For example, when considering the skill of questioning for a child in Y4, a teacher can consider all the text highlighted in the Y4 part of the questioning column but their judgement regarding whether the child is working at year group expectation is ultimately based on the statutory title 'LKS2 - can ask a relevant question' rather than how many of the bullet points are 'ticked off'.

It is not expected that every single bullet point in the 'working scientifically skills' grids is achieved but rather that these are used to support skill progression and assist in making a judgement against the statutory column titles.

It is important to note that a child can be on track to meet end of year expectations but can have a particular strength or need extra support with an aspect or skill. If this is a significant strength (or a significant weakness) across the majority of the skills then they could be assessed at working above (or below) year group expectation.

Below are some of the areas where a child might show particular strengths or where they might need more support in their learning.

- ▶ **Numeracy Skills within Science:** Data, measures, scales, tables, graphs, noticing patterns.
- ▶ **Literacy Skills within Science:** Using scientific vocabulary and common language effectively in sentences (verbally and written), recording their learning, background knowledge from their reading experience.
- ▶ **Thinking and Behaving like a Scientist:** Questioning, ideas and suggestions, planning investigations effectively, making decisions about what to do, carrying out practical science activities, linking the big ideas.

Remember, when making a judgement regarding skills, the titles in each column of the skills grids are for end of Y2, Y4 and Y6. For children in Y1, Y3 and Y5 teachers are using these to judge if they are **on track** to meet these expectations. They might not be there yet as they have another year to continue to develop them. The detailed content in each year group supports the year group expectation and provides evidence of strengths and areas requiring additional support for the next teacher within the age phase.

There is no specific number of times a child needs to demonstrate a particular skill. Teachers should use their professional judgement and consider whether a child can demonstrate and apply the skills specified for their year group both **consistently** and **independently** and **in different contexts**.

For mixed age classes, the scientific knowledge and conceptual understanding for a unit becomes the knowledge expectation for the whole class. For example, a mixed Y3 / 4 class might be learning about plants from the Y3 National Curriculum Programme of Study. The knowledge from this becomes the year group expectation for both the Y3 children **and** the Y4 children. The 'working scientifically' grids can then be used to ensure differentiation between the two age phases so teachers can ensure the skills are appropriate to the two different year groups being taught.

Computing

End of Year Expectations



<p>Year 6</p>	<ul style="list-style-type: none"> ▶ Be competent users of technology using it safely, respectfully and responsibly and know about digital footprints and 'strong' passwords. ▶ Demonstrate that they can identify the risks involved with content and contact and they know a wide range of ways of reporting any concerns they have. ▶ Understand what acceptable and unacceptable online behaviour is. ▶ Use strategies to verify and evaluate the reliability and accuracy of information on the internet and understand what copyright and plagiarism is and how it relates to their work. 	<ul style="list-style-type: none"> ▶ Independently select, use and combine a wide range of software on a variety of devices. ▶ Design and create a range of digital assets such as programs, systems and multimedia content for a defined purpose and audience. ▶ Use advanced searches including the use of operators. ▶ Create spreadsheet models to investigate real life problems, using their knowledge to make predictions. 	<ul style="list-style-type: none"> ▶ Know how search engines work and what 'ranking' is when related to search engines. ▶ Design and create more complex programs using sequence, repetition, selection and variables appropriately. ▶ Develop their computational thinking can demonstrate that they can decompose and evaluate their tasks and correct errors in their algorithms and programs. ▶ Be confident in their knowledge of inputs and outputs and plan and write programs to solve tasks to control external devices such as sensors and motors. ▶ Know how different computer networks work, including the roles of the components and the opportunities and benefits that they offer for communication and collaboration. ▶ Understand the difference between the internet and internet services.
<p>Year 5</p>	<ul style="list-style-type: none"> ▶ Use technology safely, respectfully and responsibly and continue to develop skills to identify risks involved with contact and content including developing an understanding of digital footprints. ▶ Know a range of ways of reporting concerns about content and contact involving the internet and other communication technologies. ▶ Understand what acceptable and unacceptable online behaviour is. ▶ Use strategies to verify the reliability and accuracy of information on the internet and understand copyright. 	<ul style="list-style-type: none"> ▶ Select, use and combine a range of software and use a wider range of devices to create a variety of digital assets such as programs, systems, databases, spreadsheets and multimedia content for a defined purpose. ▶ Understand about the use of operators in searching and continue developing their effective search techniques by using Boolean operators in their searches. ▶ Create simple spreadsheet models to investigate real life problems. 	<ul style="list-style-type: none"> ▶ Design and write programs using sequence, repetition, selection and variables. ▶ Develop greater understanding of how to use selection and repetition in more complex programs. ▶ Understand how search engines work. ▶ Further develop their computational thinking showing they can plan and decompose tasks; explain how the algorithms they write work and correct errors in their programs. ▶ Plan and write programs to control external devices such as sensors and motors and explain about the inputs and outputs used. ▶ Have an understanding of how a computer network works and the opportunities that it offers for communication and collaboration.
<p>Year 4</p>	<ul style="list-style-type: none"> ▶ Use technology respectfully, responsibly and safely, knowing how to keep their information and passwords secure. ▶ Know different ways of reporting concerns about content and contact involving the internet and other communication technologies. ▶ Have a greater understanding of what is acceptable and unacceptable online behaviour. ▶ Start to develop strategies to verify the reliability and accuracy of information on the internet and develop an awareness of copyright. 	<ul style="list-style-type: none"> ▶ Use and combine a variety of software and devices with increasing independence, to create a range of digital assets such as programs, databases, systems and multimedia content. ▶ Understand how Boolean operators can change searches and select appropriate information for their tasks. ▶ Use models and simulations to produce graphs and explore patterns and relationships. 	<ul style="list-style-type: none"> ▶ Design and write more complex algorithms and programs using sequence, repetition and selection. ▶ Further develop their computational thinking to help debug their programs and design and solve problems and tasks. ▶ Have a simple understanding of how search engines work. ▶ Develop their understanding of inputs and outputs further, demonstrating how they can use programs to control external devices such as sensors, motors and robots. ▶ Understand the difference between the internet and World Wide Web.

Computing

End of Year Expectations



<p>Year 3</p>	<ul style="list-style-type: none"> ▶ Use technology safely and respectfully and have an understanding of how to keep information secure. ▶ Realise the importance of reporting any concerns they have using the internet and other communication technologies, and know some ways in which they can do it. ▶ Develop an understanding of what is acceptable and unacceptable online behaviour. ▶ Realise that not all information on the internet is trustworthy and there is a need to verify its reliability. 	<ul style="list-style-type: none"> ▶ Use a variety of software and devices to create digital assets such as programs, graphs and multimedia content for a defined purpose. ▶ Develop their search strategies further by refining their use of keywords and starting to use appropriate key phrases and questions. ▶ Use more complex simulations and understand the effects of changing variables. 	<ul style="list-style-type: none"> ▶ Plan and write algorithms and programs using sequence and repetition and further develop their computational thinking strategies to solve problems and errors in their algorithms and programs. ▶ Have knowledge and experience of using a range of different inputs and outputs. ▶ Describe some of components of a computer network and some of the ways in which computer networks can be used.
<p>Year 2</p>	<ul style="list-style-type: none"> ▶ Know their responsibilities from their school's acceptable use policy and how to report any concerns they have. ▶ Recognise situations using technology and the internet involving content and contact that are not safe and know where to go for help. ▶ Begin to develop an understanding of the importance of computers and the internet to communicate. ▶ Develop their knowledge of the technology used in everyday life in a range of situations and be able to discuss their ideas. 	<ul style="list-style-type: none"> ▶ Use technology with purpose to create, store, organise, retrieve and manipulate digital content. ▶ Learn to make a range of simple digital assets such as presentations, movies, audio files and graphs. ▶ Navigate the web and carry out simple searches using suitable search engines and begin to understand that not everything on the internet is true. ▶ Use simple simulations and understand how they work. 	<ul style="list-style-type: none"> ▶ Use algorithms and know that they can be implemented as programs on devices. ▶ Know what debugging is and find errors in their programs. ▶ Understand that programs execute by following a precise set of instructions. ▶ Create simple programs and further develop their strategies and logical thinking to find bugs and predict outcomes in their algorithms and programs.
<p>Year 1</p>	<ul style="list-style-type: none"> ▶ Recognise common uses of information technology beyond school. ▶ Understand the rules and responsibilities outlined by the school's acceptable use policy and begin to understand where to go for help when they have concerns. ▶ Develop an understanding of how to keep their personal information private and understand they need to use technology safely and respectfully. 	<ul style="list-style-type: none"> ▶ Use technology with support, to create, store and retrieve digital content such as text and images. ▶ Use a simple search to find information or files. ▶ Develop understanding of how simulations work through exploring simple examples. 	<ul style="list-style-type: none"> ▶ Understand what algorithms are and develop strategies to help find bugs in them. ▶ Make very simple programs.
	<p>Digital Literacy</p>	<p>Information Technology</p>	<p>Computer Science</p>