



Title	<b>Examples of Key Stage 1 Science Specific Learning Challenges</b>
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# Introduction

- This scheme of work has been developed to ensure that you will have full coverage of the new National Curriculum. It follows the programmes of study for each year very carefully and provides the right balance between working scientifically and learning scientific facts.
- Each set of Learning Challenges then links directly to the science knowledge, skills and understanding to ensure that learning is progressive and continuous.
- There has been an attempt to link either creative or expressive arts into each scientific learning challenge so that there is breadth and balance in the coverage as a whole.
- The art, DT, music and dance knowledge, skills and understanding have been taken from the 'Weaving KSU into the new National Curriculum' book which ensures that you will have progression and continuity in these subject areas also.
- The initial or main questions outlined in the examples that follow are obviously the starting points for you to consider. The ethos that underpins the Learning Challenge approach requires teachers to check on what children already know and then invite them to think of their own questions. This approach is still highly desirable but teachers need to ensure that they are meeting the National Curriculum requirements. **Very importantly ensure that all content absolutely meets your context.**
- Each Learning Challenge has a suggested 'wow' and its own suggested reflection. By using these you will get a more complete level of challenge for the pupils.
- You will also note that every opportunity has been taken to help children apply literacy and numeracy skills where it is possible to do so.
- Finally, every attempt has been made to bring science to life by taking starting points from the children's context. In this way it is hoped that science will be viewed as exciting and interesting as well as fun.

# Learning Challenges – The Principles

## *What are the main principles?*

- The Learning Challenge concept is built around the principle of greater learner involvement in their work. It requires deep thinking and encourages learners to work using a question as the starting point.
- In designing the curriculum teachers and learners are using a prime learning challenge, expressed as a question, as the starting point. Using the information gained from pre- learning tasks and the school's context a series of subsidiary challenges are then planned. Each subsidiary learning challenge is also expressed as a question. See how this works in the scheme of work provided.
- The subsidiary learning challenge is normally expected to last for one week but this does not need to be the case. However, initially it may be useful for the learners and indeed the staff to get used to the weekly learning challenge. The important point is that the learning challenges need to make sense to the learners and be something that is within their immediate understanding.

# Learning Challenges – The Principles

## *How do the Pre- Learning Tasks Work?*

- Pre-Learning Tasks ensure that learners are directly involved in the planning process. Well planned pre-learning tasks should help to bring out what learners already know; what misconceptions they may have and what really interests them.
- Teachers should take account of the outcomes from pre-learning tasks to plan the subsidiary learning challenges for each major area of study. It should help teachers recognise what transferable skills learners have already developed that could be used to initiate new learning with a level of confidence.
- Pre-Learning tasks could take many different forms and can last for as long or as short as required. Some may be written tasks others oral. Mind mapping is one method that has been used successfully by many schools. Using pre-learning tasks as part of a school's programme of home learning will help to get parents and carers directly involved in their children's learning.

# Learning Challenges – The Principles

## ***How do we ensure that pupils are improving their knowledge and understanding and developing appropriate skills?***

- Continuity and Progression in the curriculum will be built around a set of matrices known as essential ‘knowledge, skills and understanding’ within subject disciplines. These are broken into Year group expectations and have additional challenges for able learners. The Knowledge, Skills and Understanding’ matrices within the Learning Challenge Curriculum (Weaving Knowledge, Skills and Understanding into the new National Curriculum) will allow school to guarantee that the learners’ essential skills are being developed, alongside National Curriculum requirements (where appropriate), whilst allowing individual schools to have a great deal of autonomy with their methodology.
- In addition, there is an expectation that teachers apply English, mathematics and ICT skills where it is appropriate to do so.

# Learning Challenges – The Principles

## How are learners presented with opportunities to reflect on their learning?

- Time for learners to reflect or review their learning is central to the whole process. This is in keeping with the 'Learning to Learn' principles where reflection is seen as a very important part of individuals' learning programme.
- Within the Learning Challenge Curriculum it is suggested that the final subsidiary learning challenge is handed over for learners to reflect on their learning. The idea is that learners present their learning back to the rest of the class or another appropriate audience - making the most of their oracy and ICT skills to do so. Initially, learners may require a great deal of direction so the reflection time may need to be presented in the form of a question which helps them to review their work.
- Although reflection is seen as a concluding part of the prime learning challenge it is hoped that there will be continual opportunities for learners to reflect frequently, especially as each subsidiary learning challenge comes to an end. Ideally, there should be a good deal of learner autonomy evident during reflection time.

# Science Programme of Study: Key Stage 1

- The principal focus of science teaching in **key stage 1** is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos.
- ‘Working scientifically’ is described separately in the programme of study, but must **always** be taught through and clearly related to the teaching of substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.
- Pupils should read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

# Science Learning Challenges

Year 1



# Year 1 Statutory Requirements

Working Scientifically (Y1 & 2)	Plants	Animals, including humans	Everyday materials	Seasonal Changes
<ul style="list-style-type: none"> <li>• Ask simple questions and recognise that they can be answered in different ways;</li> <li>• Observe carefully, using simple equipment;</li> <li>• Identifying and classifying</li> <li>• Using their observations and ideas to suggest answers to their questions;</li> <li>• Gathering and recording data to help in answering questions.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify and name a variety of common, wild and green plants, including deciduous and evergreen trees;</li> <li>• Identify and describe the basic structure of a variety of common flowering plants, including trees.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify and name a variety of common animals, including fish, amphibians, reptiles, birds and mammals;</li> <li>• Identify and name a variety of common animals that are carnivores, herbivores and omnivores;</li> <li>• Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets);</li> <li>• Identify, name, draw and label the basic parts of the human body and say which part of the human body is associated with each sense.</li> </ul>	<ul style="list-style-type: none"> <li>• Distinguish between an object and the materials from which it is made;</li> <li>• Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock;</li> <li>• Describe the simple physical properties of a variety of everyday materials;</li> <li>• Compare and group together a variety of everyday materials on the basis of their simple physical properties.</li> </ul>	<ul style="list-style-type: none"> <li>• Observe changes across the four seasons;</li> <li>• Observe and describe weather associated with the seasons and how day length varies.</li> </ul>

# Science: Year 1 Overview

## Key Features

	PLANTS	ANIMALS (including Humans)	EVERYDAY MATERIALS	SEASONAL CHANGES
<b>YEAR 1</b>	<ul style="list-style-type: none"> <li>• Identification and labelling, including trees</li> <li>• Structure of plants, including roots, stem, flower, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Identification and labelling a variety of common animals (fish, amphibians, reptiles, birds and mammals)</li> <li>• Know carnivores, herbivores and omnivores</li> <li>• How to care for pets</li> <li>• Name parts of the human body</li> </ul>	<ul style="list-style-type: none"> <li>• Identify and name a range of materials (wood, plastic, glass, metal, water and rock);</li> <li>• Classifying and grouping according to a range of physical properties</li> </ul>	<ul style="list-style-type: none"> <li>• Features of day and night including temperature</li> <li>• Weather, associated with seasons</li> </ul>
<b>Possible Learning Challenges</b>	<ul style="list-style-type: none"> <li>• Which birds and plants would Little Red Riding Hood find in our park?</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Why are humans not like tigers?</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Which materials should the Three Little Pigs have used to build their house? or</b></li> <li>• <b>What do Aliens think of life on planet Earth?</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Why does it get dark earlier in winter? or</b></li> <li>• <b>How do the seasons impact on what we do?</b></li> </ul>

# Scientific Knowledge, Skills and Understanding within the National Curriculum

Year 1 Science

# Knowledge, Skills and Understanding breakdown for Working Scientifically

## Year 1

Observing closely	Performing Tests	Identifying and Classifying	Recording findings
<ul style="list-style-type: none"> <li>• Can they talk about what they &lt;see, touch, smell, hear or taste&gt;?</li> <li>• Can they use simple equipment to help them make observations?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they perform a simple test?</li> <li>• Can they tell other people about what they have done?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they identify and classify things they observe?</li> <li>• Can they think of some questions to ask?</li> <li>• Can they answer some scientific questions?</li> <li>• Can they give a simple reason for their answers?</li> <li>• Can they explain what they have found out?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they show their work using pictures, labels and captions?</li> <li>• Can they record their findings using standard units?</li> <li>• Can they put some information in a chart or table?</li> </ul>

## Year 1 (Challenging)

<ul style="list-style-type: none"> <li>• Can they find out by watching, listening, tasting, smelling and touching?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they give a simple reason for their answers?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they talk about similarities and differences?</li> <li>• Can they explain what they have found out using scientific vocabulary?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they use ICT to show their working?</li> <li>• Can they make accurate measurements?</li> </ul>
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# Knowledge, Skills and Understanding breakdown for Plants and Animals, including humans

## Year 1

Plants	Animals, including humans	
<ul style="list-style-type: none"> <li>• Can they name the petals, stem, leaf, bulb, flower, seed, stem and root of a plant?</li> <li>• Can they identify and name a range of common plants and trees?</li> <li>• Can they recognise deciduous and evergreen trees?</li> <li>• Can they name the trunk, branches and root of a tree?</li> <li>• Can they describe the parts of a plant (roots, stem, leaves, flowers)?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they point out some of the differences between different animals?</li> <li>• Can they sort photographs of living things and non-living things?</li> <li>• Can they identify and name a variety of common animals? (birds, fish, amphibians, reptiles, mammals, invertebrates)</li> <li>• Can they describe how an animal is suited to its environment?</li> <li>• Can they identify and name a variety of common animals that are carnivores, herbivores and omnivores?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they name the parts of the human body that they can see?</li> <li>• Can they draw &amp; label basic parts of the human body?</li> <li>• Can they identify the main parts of the human body and link them to their senses?</li> <li>• Can they name the parts of an animal's body?</li> <li>• Can they name a range of domestic animals?</li> <li>• Can they classify animals by what they eat? (carnivore, herbivore, omnivore)</li> <li>• Can they compare the bodies of different animals?</li> </ul>

## Year 1 (Challenging)

<ul style="list-style-type: none"> <li>• Can they name the main parts of a flowering plant?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they begin to classify animals according to a number of given criteria?</li> <li>• Can they point out differences between living things and non-living things?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they name some parts of the human body that cannot be seen?</li> <li>• Can they say why certain animals have certain characteristics?</li> <li>• Can they name a range of wild animals?</li> </ul>
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# Knowledge, Skills and Understanding breakdown for Everyday Materials

## Year 1

### Everyday materials (classifying and grouping)

- Can they distinguish between an object and the material from which it is made?
- Can they describe materials using their senses?
- Can they describe materials using their senses, using specific scientific words?
- Can they explain what material objects are made from?
- Can they explain why a material might be useful for a specific job?
- Can they name some different everyday materials? e.g. wood, plastic, metal, water and rock
- Can they sort materials into groups by a given criteria?
- Can they explain how solid shapes can be changed by squashing, bending, twisting and stretching?

### Year 1 (Challenging)

- Can they describe things that are similar and different between materials?
- Can they explain what happens to certain materials when they are heated, e.g. bread, ice, chocolate?
- Can they explain what happens to certain materials when they are cooled, e.g. jelly, heated chocolate?

# Knowledge, Skills and Understanding breakdown for Seasonal Changes

## Year 1

### Seasonal Changes

- Can they observe changes across the four seasons?
- Can they name the four seasons in order?
- Can they observe and describe weather associated with the seasons?
- Can they observe and describe how day length varies?

## Year 1 (Challenging)

- Can they observe features in the environment and explain that these are related to a specific season?
- Can they observe and talk about changes in the weather?
- Can they talk about weather variation in different parts of the world?

# Year 1: Which birds and plants would Little Red Riding Hood find in *\*our park?* (\*replace with your local park or school grounds)

## KS1 Science (Y1 Plants)

- Identify and name a variety of common, wild and green plants, including deciduous and evergreen trees;
- Identify and describe the basic structure of a variety of common flowering plants, including trees.

## KS1 Science (Animals, including humans)

- Identify and name a variety of common animals, including fish, amphibians, reptiles, **birds** and mammals;

*WOW: Read: Children visit their nearest woods or park and have the story of Little Red Riding Hood read to them.*

LC1	Why would Little Red Riding Hood find our park a very interesting place to be?
LC2	How can we identify the birds that we find in our nearest park or around our school?
LC3	What can we do to try and attract birds to our school?
LC4	How can we keep a record of the different types of plants and trees we find at our nearest park or around the school?
LC5	How can we capture the beauty of the birds, plants and trees we see?
LC6	Can we name the different parts of the plants and trees we see?
LC7	Reflection: How can you put together a power point presentation of the birds, plants and trees seen?

**Possibilities for working scientifically** – LC2 and LC6- Observing closely, using magnifying glasses, and comparing and contrasting familiar plants; describing how they were able to identify and group them, and drawing diagrams showing the parts of different plants and trees. Children to keep records of how plants have changed over time, for example, the leaves falling off trees and buds opening; and compare and contrast how different plants change over time.

**Literacy Link:** This LC should take place at the same time as the class is looking at 'Traditional Tales'.

There will opportunities for children to ask their own questions based on plants and birds and to create an on-going 'Research Book' in the Floor Book style.

**Numeracy Link:** Children to keep a tally of the different birds and plants that they see.

**Creative Art Link:** Children will design and create their own bird tables and make mixtures with seeds, nuts, etc. to hang from them.

**Creative Art Link:** This provides opportunities for children to sketch the plants and trees they have observed.



# Year 1: Which birds and plants would Little Red Riding Hood find in our park?

## Year 1: Science, Art & Design and Design Technology Knowledge, Skills and Understanding

### Science

#### Working Scientifically/ Plants and Birds

- Can they talk about what they <see, touch, smell, hear or taste>?
- Can they use simple equipment to help them make observations?
- Can they put some information in a chart or table?
- Can they identify and classify things they observe?
- Can they think of some questions to ask?
- Can they answer some scientific questions?
- Can they give a simple reason for their answers?
- Can they explain what they have found out?
  
- Can they name the petals, stem, leaf and root of a plant?
- Can they identify and name a range of common plants and trees?
- Can they recognise deciduous and evergreen trees?
- Can they describe the parts of a plant? (roots, stem, leaves, flowers)
- Can they sort some plants by size?

### Design Technology

- Can they think of some ideas of their own?
- Can they explain what they want to do?
- Can they use pictures and words to plan?
- Can they explain what they are making?
- Which tools are they using?
- Can they make a structure/model using different materials?
- Is their work tidy?
- Can they make their model stronger if it needs to be?

### Year 1 (Challenging)

- Can they find out by watching, listening, tasting, smelling and touching?
- Can they talk about similarities and differences?
- Can they explain what they have found out using scientific vocabulary?
- Can they use ICT to show their working?
- Can they make accurate measurements?
  
- Can they name the main parts of a flowering plant?
- Can they sort some plants by those that can be eaten and those that cannot?

### Art & Design

- Can they draw using pencil and crayons?
- Can they draw lines of different shapes and thickness, using 2 different grades of pencil?

# Year 1: Why are humans not like tigers?

## KS1 Science (Y1 Animals, including Humans)

- Identify and name a variety of common animals, including fish, amphibians, reptiles, birds and mammals;
- Identify and name a variety of common animals that are carnivores, herbivores and omnivores;
- Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets);
- Identify, name, draw and label the basic parts of the human body and say which part of the human body is associated with each sense.

**WOW:** Read 'The Tiger who came to tea' and 'Zoo' Visit to a zoo (if possible)

LC1	Why do we call some animals 'wild'?
LC2	What would you ask a zoo keeper?
LC3	Why would it not be sensible for all animals to live in England?
LC4	How are we humans different from most animals?
LC5	What do we mean by carnivore, herbivore and omnivore?
LC6	What do we need to do to keep our pets happy?
LC7	Who are the minibeasts that live in our school grounds?
LC8	Reflection: Can you create your own non fiction book on a 'Visit to the Zoo'?

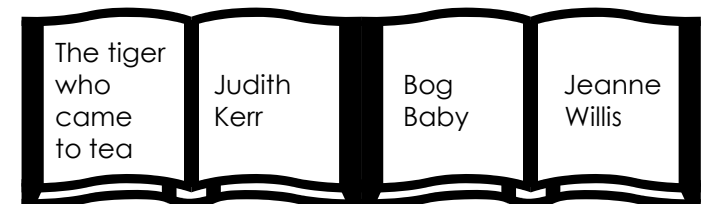
**Working scientifically:** using their observations to compare and contrast animals at first hand or through videos and photographs, describing how they identify and group them; grouping animals according to what they eat; and using their senses to compare different textures, sounds and smells.

**Literacy Link:** Read the well known books associated with features of different animals and get children to talk about their favourite animals and the way they live.

**Literacy Link:** Pupils to create their own fact files based on a chosen wild animal. They will also think of a specific question to ask a zoo keeper (ideally to find out when they are on their zoo visit or to work out from their own research). This will be linked to the reflection week when they put this information into a non-fiction book.

**Expressive Art Link:** This LC will also provide opportunities to discuss humans' ability to work together. To show this off they will create a special dance about wild animals and perform it to Years 2 and EYFS.

**Creative Art Link:** This LC will provide opportunities to talk about our ability to draw and write about other things. This will then be linked to the opportunity to make a self portrait.



# Year 1: Why are humans not like tigers?

## Year 1: Science, Art and Dance Knowledge, Skills and Understanding

### Science

#### Working Scientifically/ Animals, including humans

- Can they talk about what they <see, touch, smell, hear or taste>?
- Can they use simple equipment to help them make observations?
- Can they put some information in a chart or table?
- Can they identify and classify things they observe?
- Can they think of some questions to ask?
- Can they answer some scientific questions?
- Can they give a simple reason for their answers?
- Can they explain what they have found out?
  
- Can they point out some of the differences between different animals?
- Can they sort photographs of living things and non-living things?
- Can they classify common animals? (birds, fish, amphibians, reptiles, mammals, invertebrates)
- Can they describe how an animal is suited to its environment?
- Can they name the parts of the human body that they can see?
- Can they identify the main parts of the human body and link them to their senses?
- Can they name the parts of an animal's body?
- Can they name a range of domestic animals?
- Can they classify animals by what they eat? (carnivore, herbivore, omnivore)
- Can they compare the bodies of different animals?
- Can they sort some animals by body covering, eg, scales, fur and skin?

### Art & Design

- Can they communicate something about themselves in their drawing?
- Can they create moods in their drawings?
- Can they draw using pencil and crayons?
- Can they draw lines of different shapes and thickness, using 2 different grades of pencil?

### Dance

- Can they explore and perform basic body actions?
- Do they use different parts of the body singly and in combination?
- Do they show some sense of dynamic, expressive and rhythmic qualities in their own dance?
- Do they choose appropriate movements for different dance ideas?
- Can they remember and repeat short dance phrases and simple dances?
- Do they move with control?
- Do they vary the way they use space?
- Do they describe how their lungs and heart work when dancing?
- Do they describe basic body actions and simple expressive and dynamic qualities of movement?

### Year 1 (Challenging)

- Can they find out by watching, listening, tasting, smelling and touching?
- Can they talk about similarities and differences?
- Can they explain what they have found out using scientific vocabulary?
- Can they use ICT to show their working?
- Can they make accurate measurements?
  
- Can they begin to classify animals according to a number of given criteria?
- Can they name some parts of the human body that cannot be seen?
- Can they say why certain animals have certain characteristics?
- Can they name a range of wild animals?

# Year 1: Why does it get darker earlier in winter?

## KS1 Science (Y1 Seasonal Changes)

- Observe changes across the four seasons;
- Observe and describe weather associated with the seasons and how day length varies.

WOW: Read: 'The Owl that was afraid of the dark'

LC1	Why are we sometimes afraid of the dark?
LC2	Where do shadows come from?
LC3	Why is the Sun so important to us and is it always in the same place?
LC4	Where do the stars go to in the daytime?
LC5	How can we create our own night picture?
LC6	Which animals come out at night?
LC7	How can we create our own shadow theatre?
LC8	Reflection: How can you create a performance of shadow puppets?

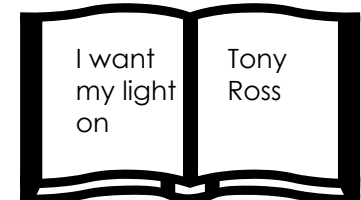
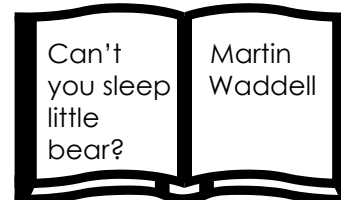
**Working Scientifically:** exploring shiny things and grouping them according to whether they shine in the dark or not. They can go on a shadow hunt and think about what is similar about the places where shadows are found (that is, that there is a light source and something is blocking it).

**Literacy Link:** Read 'The Owl that was afraid of the dark' and ask children to research animals that are nocturnal in readiness for LC6.

**Numeracy Link:** Opportunities to keep a record of the temperature over a night and day time and present information on a chart. There will also be opportunities for children to measure and record the lengths of their shadows.

**Creative Art Link:** This LC will see children consider Van Gogh's *Starry Night* and they will then use his 'swirly' style to recreate their own night time pictures.

**Expressive Art Link:** There is an opportunity for children to write their own stories and to perform it to the Year 2 and EYFS children.



# Year 1: How do the seasons impact on what we do? (on going all year)?

## KS1 Science (Y1 Seasonal Changes)

- Observe changes across the four seasons;
- Observe and describe weather associated with the seasons and how day length varies.

WOW: Someone comes into the classroom dressed as Mr/s Autumn (leaf suit). Children to prepare questions to ask him or her.

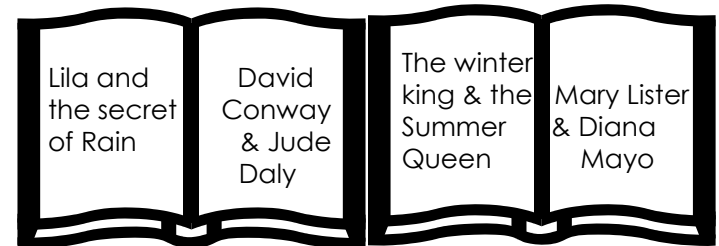
LC1	Why are there so many leaves on the ground in Autumn?
LC2	What changes do we see in our country with each season?
LC3	What would you need to do to become the next weather presenter?
LC4	How can you create patterns using leaves in the style of William Morris?
LC5	After listening to music entitled the 'Four Seasons', can you create your own music which captures different weather patterns?
LC6	Why are so many of the things you enjoy doing dependent on the time of year and the weather?
LC7	Reflection: In small groups, can you create a typical weather forecast summary which will be filmed?

**Literacy Link:** There are many opportunities provided for pupils to develop their oracy skills. These are especially provided within LC3 and during the reflection

**Numeracy Link:** Lots of opportunity to set things out in charts, especially in relation to the weather. Children will be dealing with centigrade and also measuring rainfall.

**Creative Art Link:** Having looked at the work of William Morris, children should be invited to create their own print and drawing based on the leaves they have found.

**Expressive Art Link:** There is an opportunity for children to listen to and appreciate classical music. They will then create their own music based on different elements of weather.



# Year 1: Why does it get dark early in the winter? or, Year 1: How do the seasons impact on what we do?

## Year 1: Science and Art Knowledge, Skills and Understanding

### Science

#### Working Scientifically/ Seasonal Changes

- Can they talk about what they <see, touch, smell, hear or taste>?
- Can they use simple equipment to help them make observations?
- Can they perform a simple test?
- Can they tell other people about what they have done?
- Can they record their findings using standard units?
- Can they put some information in a chart or table?
- Can they recognise that electricity is an important source of light?
- Can they identify and name the sources of light?
- Can they identify and name sources of light that we can see?
- Can they explain what darkness is?
- Can they compare sources of light? (brightest, dullest, darker, lighter)
- Can they observe and describe shadows during the day?
- Do they know that the Sun lights up the Earth?
- Can they stay safe when observing the Sun?
- Can they describe how the Sun moves across the sky?

### Art & Design

- Can they create moods in their drawings?
- Can they draw using pencil and crayons?
- Can they draw lines of different shapes and thickness, using 2 different grades of pencil?
- Can they choose to use thick and thin brushes as appropriate?
- Can they name the primary and secondary colours?
- Can they describe what they can see and like in the work of another artist?
- Can they ask sensible questions about a piece of art?

## Year 1 (Challenging)

- Can they use ICT to show their working?
- Can they make accurate measurements?
- Can they explain how electricity helps us at home and at school?
- Can they describe changes in <light, sound> that result from action/s?
- Can they describe how light and temperature are different during the night and day?
- Do they know that the Sun moves across the sky during the day?
- Can they explain why they can't see stars in the day time?

# Year 1: Which materials should the Three Little Pigs have used to build their house?

## KS1 Science (Y1: Everyday Materials)

- Distinguish between an object and the materials from which it is made;
- Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock;
- Describe the simple physical properties of a variety of everyday materials;
- Compare and group together a variety of everyday materials on the basis of their simple physical properties.

**WOW:** Start with a discussion about the materials used by the Three Little Pigs to build each house. Visit from a builder or Bob the Builder.

LC1 What are the advantages and disadvantages of using straw, wood and bricks for different structures?

LC2 How are bricks joined together?

LC3 How can we make very strong structures from straw?

LC4 Which materials were used to build our school and why were they chosen?

LC5 How can you build a bridge using only paper?

LC6 Can you create a dance that shows strong structures using your bodies?

LC7 Reflection: How can you design and make your ideal bedroom?

**Working Scientifically:** The idea here is to test each of these three materials to find out about their qualities.

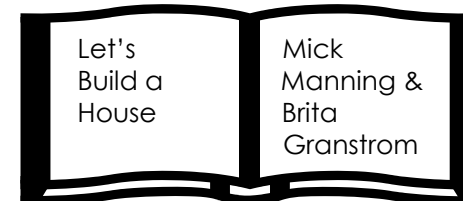
They should perform simple tests to explore questions such as: 'What is the best material for .....?'

**Literacy Link:** Link this to generally looking at Traditional Tales.

**Numeracy Links:** Many opportunities here for pupils to measure and to classify.

**Creative Arts Link:** This is an opportunity for children to work in small groups to create structures that they will have to test. Their bridges should be designed and built so as to hold 1Km in weight.

**Expressive Arts Link:** Create dance which shows their understanding of strength in structures. This will be performed to Year 2 and EYFS/



# Year 1: What do Aliens think of life on planet Earth?

## KS1 Science (Y1: Everyday Materials)

- Distinguish between an object and the materials from which it is made;
- Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock;
- Describe the simple physical properties of a variety of everyday materials;
- Compare and group together a variety of everyday materials on the basis of their simple physical properties.

**WOW:** Start with a reading of 'Aliens Love Underpants'. Visit from a builder or Bob the Builder.

LC1	What materials can you use to make the Alien's underpants?
LC2	What material would make a good house for the aliens to live in?
LC3	Why would wood not make a good window?
LC4	How can the aliens stay safe whilst building their house?
LC5	How can the aliens stay dry in the rain and how would they go about celebrating keeping dry?
LC6	How can we make jelly for the aliens leaving party?
LC7	Reflection: Have an Alien day where the children have to dress up but do a presentation about different materials they come across as though they didn't know them before

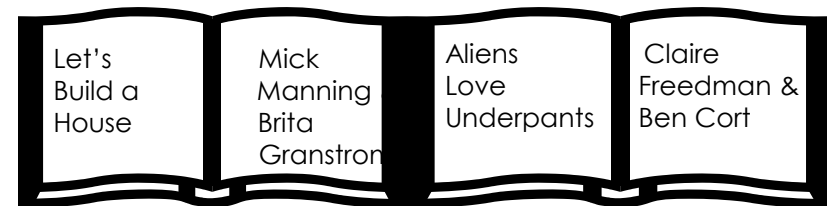
**Working Scientifically:** The idea here is to test A range of materials to find out about their qualities. They should perform simple tests to explore questions such as: 'What is the best material for .....?'

**Literacy Link:** Link this to generally looking at Traditional Tales (though you may find a more suitable text).

**Numeracy Links:** Many opportunities here for pupils to measure and to classify.

**Creative Arts Link:** LC1 provides an opportunity for children to work in small groups to design and make underpants for the aliens.

**Expressive Arts Link:** Create dance which shows Alien type movements.





# Year 1: Which materials should the Three Little Pigs have used to build their house? or Year 1: What do Aliens think of life on planet Earth?

## Year 1: Science and DT Knowledge, Skills and Understanding

### Science Everyday Materials

- Can they perform a simple test?
- Can they tell other people about what they have done?
- Can they identify and classify things they observe?
- Can they think of some questions to ask?
- Can they answer some scientific questions?
- Can they give a simple reason for their answers?
- Can they explain what they have found out?
- Can they show their work using pictures, labels and captions?
- Can they record their finding using standard units?
- Can they put some information in a chart or table?
  
- Can they describe materials using their senses?
- Can they describe materials using their senses, using specific scientific words?
- Can they explain what material objects are made from?
- Can they explain why a material might be useful for a specific job?
- Can they name some different materials?
- Can they sort materials into groups by a given criteria?

### Design Technology

- Can they think of some ideas of their own?
- Can they explain what they want to do?
- Can they use pictures and words to plan?
- Can they explain what they are making?
- Which tools are they using?
- Can they make a structure/model using different materials?
- Is their work tidy?
- Can they make their model stronger if it needs to be?

## Year 1 (Challenging)

- Can they give a simple reason for their answers?
- Can they talk about similarities and differences?
- Can they explain what they have found out using scientific vocabulary?
- Can they use ICT to show their working?
- Can they make accurate measurements?
  
- Can they describe things that are similar and different between materials?
- Can they explain what happens to certain materials when they are heated, eg, bread, ice, chocolate?
- Can they explain what happens to certain materials when they are cooled, eg, jelly, heated chocolate?
- Can they tell which materials are changed by bending, twisting and stretching?

# Science Learning Challenges

Year 2

# Year 2 Statutory Requirements

Working Scientifically (Y1 & 2)	Living things and their habitats	Plants	Animals, including humans	Uses of everyday materials
<ul style="list-style-type: none"> <li>• Ask simple questions and recognise that they can be answered in different ways;</li> <li>• Observe carefully, using simple equipment;</li> <li>• Identifying and classifying;</li> <li>• Using their observations and ideas to suggest answers to their questions;</li> <li>• Gathering and recording data to help in answering questions.</li> </ul>	<ul style="list-style-type: none"> <li>• Explore and compare differences between things that are living, dead and things that have never been alive;</li> <li>• Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other;</li> <li>• Identify and name a variety of plants and animals in their habitats, including micro-habitats;</li> <li>• Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.</li> </ul>	<ul style="list-style-type: none"> <li>• Observe and describe how seeds and bulbs grow into mature plants;</li> <li>• Find out and describe how plants need water, light and suitable temperature to grow and stay healthy.</li> </ul>	<ul style="list-style-type: none"> <li>• Notice that animals, including humans, have offspring, which grow into adults;</li> <li>• Find out about and describe the basic needs of animals, including humans for survival (water, food and air);</li> <li>• Describe the importance for humans of exercise, eating the right amount of different types of food, and hygiene.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, rock, brick, paper and cardboard for particular uses;</li> <li>• Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</li> </ul>

# Science: Year 2 Overview

Key Features				
<b>YEAR 2</b>	<b>PLANTS</b>	<b>LIVING THINGS and their HABITATS</b>	<b>ANIMALS (including Humans)</b>	<b>Uses of Everyday Materials</b>
	<ul style="list-style-type: none"> <li>• What plants and seeds need to grow</li> <li>• Growing from seeds and bulbs</li> </ul>	<ul style="list-style-type: none"> <li>• Habitats</li> <li>• Living and non living things</li> <li>• Early Food Chains</li> </ul>	<ul style="list-style-type: none"> <li>• Exercise and healthy living</li> <li>• What animals and humans need to survive</li> <li>• Animals have offspring, which grow to be adults</li> </ul>	<ul style="list-style-type: none"> <li>• Use of different everyday materials</li> <li>• Classifying and grouping</li> <li>• Changing materials by bending, etc.</li> </ul>
<b>Possible Learning Challenges</b>	<ul style="list-style-type: none"> <li>• How can we grow our own salad? or</li> <li>• How can you be the next master chef?</li> </ul>	<ul style="list-style-type: none"> <li>• Why would a dinosaur not make a good pet?</li> </ul>	<ul style="list-style-type: none"> <li>• How will 5 a day help me to be healthy? or</li> <li>• How could you be the next Jessica Ennis or Steven Gerrard ?</li> </ul>	<ul style="list-style-type: none"> <li>• What is our school made of? or</li> <li>• Which materials did they use to build the Trafford Centre?</li> </ul>

# Scientific Knowledge, Skills and Understanding within the National Curriculum

Year 2 Science

# Knowledge, Skills and Understanding breakdown for Working Scientifically

## Year 2

Observing closely	Performing Tests	Identifying and Classifying	Recording findings
<ul style="list-style-type: none"> <li>• Can they use &lt;see, touch, smell, hear or taste&gt; to help them answer questions?</li> <li>• Can they use some scientific words to describe what they have seen and measured?</li> <li>• Can they compare several things?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they carry out a simple fair test?</li> <li>• Can they explain why it might not be fair to compare two things?</li> <li>• Can they say whether things happened as they expected?</li> <li>• Can they suggest how to find things out?</li> <li>• Can they use prompts to find things out?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they organise things into groups?</li> <li>• Can they find simple patterns (or associations)?</li> <li>• Can they identify animals and plants by a specific criteria, eg, lay eggs or not; have feathers or not?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they use &lt;text, diagrams, pictures, charts, tables&gt; to record their observations?</li> <li>• Can they measure using &lt;simple equipment&gt;?</li> </ul>

## Year 2 (Challenging)

<ul style="list-style-type: none"> <li>• Can they suggest ways of finding out through listening, hearing, smelling, touching and tasting?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they say whether things happened as they expected and if not why not?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they suggest more than one way of grouping animals and plants and explain their reasons?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they use information from books and online information to find things out?</li> </ul>
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# Knowledge, Skills and Understanding breakdown for Living Things and their Habitats

## Year 2

Living Things & their Habitats	Animals, including humans	Plants
<ul style="list-style-type: none"> <li>• Can they match certain living things to the habitats they are found in?</li> <li>• Can they explain the differences between living and non-living things?</li> <li>• Can they describe some of the life processes common to plants and animals, including humans?</li> <li>• Can they decide whether something is living, dead or non-living?</li> <li>• Can they describe how a habitat provides for the basic needs of things living there?</li> <li>• Can they describe a range of different habitats?</li> <li>• Can they describe how plants and animals are suited to their habitat?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they describe what animals need to survive?</li> <li>• Can they explain that animals grow and reproduce?</li> <li>• Can they explain why animals have offspring which grow into adults?</li> <li>• Can they describe the life cycle of some living things? (e.g. egg, chick, chicken)</li> <li>• Can they explain the basic needs of animals, including humans for survival? (water, food, air)</li> <li>• Can they describe why exercise, balanced diet and hygiene are important for humans?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they describe what plants need to survive?</li> <li>• Can they observe and describe how seeds and bulbs grow into mature plants?</li> <li>• Can they find out &amp; describe how plants need water, light and a suitable temperature to grow and stay healthy?</li> </ul>

## Year 2 (Challenging)

<ul style="list-style-type: none"> <li>• Can they name some characteristics of an animal that help it to live in a particular habitat?</li> <li>• Can they describe what animals need to survive and link this to their habitats?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they explain that animals reproduce in different ways?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they describe what plants need to survive and link it to where they are found?</li> <li>• Can they explain that plants grow and reproduce in different ways?</li> </ul>
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# Knowledge, Skills and Understanding breakdown for Uses of Everyday Materials

## Year 2

### Classifying and grouping materials

- Can they describe the simple physical properties of a variety of everyday materials?
- Can they compare and group together a variety of materials based on their simple physical properties?

### Changing materials

- Can they explore how the shapes of solid objects can be changed? (squashing, bending, twisting, stretching)
- Can they find out about people who developed useful new materials? (John Dunlop, Charles Macintosh, John McAdam)
- Can they identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper, cardboard for particular uses?
- Can they explain how things move on different surfaces?

## Year 2 (Challenging)

- Can they describe the properties of different materials using words like, transparent or opaque, flexible, etc.?
- Can they sort materials into groups and say why they have sorted them in that way?
- Can they say which materials are natural and which are man made?

- Can they explain how materials are changed by heating and cooling?
- Can they explain how materials are changed by bending, twisting and stretching?
- Can they tell which materials cannot be changed back after being heated, cooled, bent, stretched or twisted?



# Year 2: How can we grow our own salad?

## KS1 Science (Y2 Plants)

- Observe and describe how seeds and bulbs grow into mature plants;
- Find out and describe how plants need water, light and suitable temperature to grow and stay healthy.

*WOW: Visit from a scarecrow to explain about his job and to talk about pests*

LC1 Who's afraid of the big bad scarecrow?

LC2 What makes up a salad and why should we be eating salad regularly?

LC3 What do we need to remember if our plants are to grow ?

LC4 Why are earthworms really helpful creatures?

LC5 Who is Arcimboldo and what can we learn from him?

LC6 What goes on at a garden centre?

LC7 Guess who's coming for dinner?

LC8 Reflection: Can you make a sandwich filled with the salad you have grown?

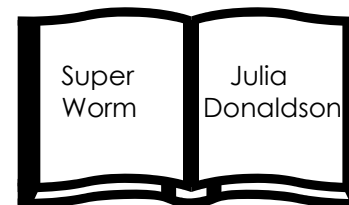
**Working Scientifically:** Making sure that children work out what a 'fair test' is. Observing and recording, with some accuracy, the growth of a variety of plants as they change over time from a seed or bulb, or observing similar plants at different stages of growth; setting up a comparative test to show that plants need light and water to stay healthy.

**Literacy Link:** LC1: Children to think of the questions they would ask a scarecrow. Research about the items that make up our salad, ie, tomatoes, lettuce, etc.

**Link to animals:** LC4: Set up a wormery.

**Creative Art Link:** This LC will see children re-create the style of work made famous by Arcimboldo and use fruits and vegetables to create their own montage.

**Literacy Link:** Children will prepare a meal and invite someone special. This will involve writing an invitation and setting up tables to ensure that their guest is well cared for.



# Year 2: How can you be the next master chef?

## KS1 Science (Y2 Plants)

- Observe and describe how seeds and bulbs grow into mature plants;
- Find out and describe how plants need water, light and suitable temperature to grow and stay healthy.

**WOW:** Visit from a local chef (eg, Desi Grill) to explain about his job and to demonstrate making a dish.

LC1	What does a chef do?
LC2	Where do chefs get their ingredients from?
LC3	How can we grow our own ingredients?
LC4	Why are earthworms really helpful creatures?
LC5	Who is Arcimboldo and what can we learn from him?
LC6	What would my special meal look like?
LC7	Guess who's coming for dinner?
LC8	Reflection: Can you make a sandwich filled with the salad you have grown?

**Literacy Link:** Children to think of the questions they would ask a chef.

Research about the items that make up the ingredients the chef used, ie, chickpeas, rice, lettuce, etc.

Write an invitation to their special guest (LC7)

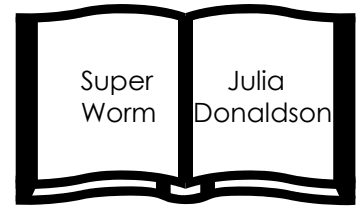
**Working Scientifically:** Making sure that children work out what a 'fair test' is.

**Link to animals:** Set up a wormery.

**Creative Art Link:** This LC will see children re-create the style of work made famous by Arcimboldo and use fruits and vegetables to create their own montage.

**Literacy Link:** Children will prepare a meal and invite someone special. This will involve writing an invitation and setting up tables to ensure that their guest is well cared for.

**Creative link:** Food technology. Children will design and make a meal they will serve to a guest they have invited.



# Year 2: How can we grow our own salad? or How can you be the next master chef?

## Year 2: Science and Art Knowledge, Skills and Understanding

### Science Plants

- Can they use some scientific words to describe what they have seen and measured?
- Can they compare several things?
- Can they carry out a simple fair test?
- Can they explain why it might not be fair to compare two things?
- Can they say whether things happened as they expected?
- Can they suggest how to find things out?
- Can they use prompts to find things out?
- Can they organise things into groups?
- Can they use (text, diagrams, pictures, charts, tables) to record their observations?
- Can they measure using <simple equipment>?
  
- Can they describe some of the life processes common to plants and animals, including humans?
- Can they describe what plants need to survive?
- Can they describe how seeds and bulbs grow into plants?
- Can they describe what a plant needs to grow and stay healthy?
- Can they explain that plants grow and reproduce?
- Can they compare how plants grow in different conditions by making measurements?

### Art & Design

- Can they create individual and group collages?
- Can they use different kinds of materials on their collage and explain why they have chosen them?
- Can they use repeated patterns in their collage?
- Can they say how other artists have used colour, pattern and shape?
- Can they create a piece of work in response to another artist's work?
- Can they begin to demonstrate their ideas through photographs and in their sketch books?
- Can they set out their ideas, using 'annotation' in their sketch book?
- Do they keep notes in their sketch books as to how they have changed their work?

## Year 2 (Challenging)

- Can they say whether things happened as they expected and if not why not?
- Can they use information from books and online information to find things out?
  
- Can they describe what plants need to survive and link it to where they are found?
- Can they explain that plants grow and reproduce in different ways?

# Year 2: Why would a dinosaur not make a good pet?

## KS1 Science (Y2 Living Things and their Habitats )


- Explore and compare differences between things that are living, dead and things that have never been alive;
- Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other;
- Identify and name a variety of plants and animals in their habitats, including micro-habitats;
- Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.

*WOW: Children find a very large egg in the class and they have to find out where it has come from and whose egg it is.*


LC1 Who does this egg belong to?

LC2 What does a dinosaur need to survive? 

LC3 What can you find out about a particular dinosaur?

LC4 How can you re-create your own dinosaur land? 

LC5 How can you classify dinosaurs?

LC6 How can we recreate the sound and movements of the dinosaurs? 

LC7 How do you know that dinosaurs really roamed the Earth?

LC8 Reflection: How can you produce a TV programme about dinosaurs?

**Working Scientifically:** sorting and classifying things according to whether they are living, dead or were never alive, and recording their findings using charts.

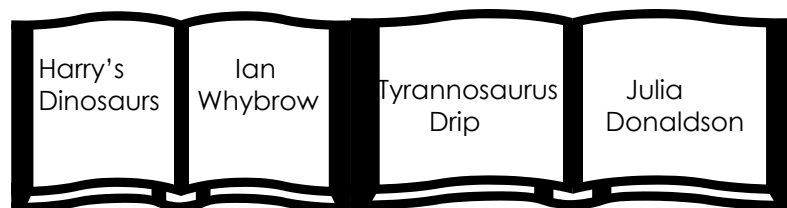
**Literacy Link:** Research into which animals lay eggs and which do not. In addition they would need to find out about the sizes of the eggs, etc. They will then create fact-files about specific dinosaurs.

**Numeracy Link:** Opportunities through the classification of dinosaurs to tally and make tables and graphs.

**Habitats Link:** This LC is about working out what their own pets need to survive. They will then consider what dinosaurs would have needed and recognise the key components that are required for animals to live and flourish.

**Creative Art Link:** This LC will see children re-create a dinosaur land. It will involve several DT skills as children plan, design, create and evaluate their models.

**Expressive Art Link:** Children will try and simulate the sounds that would have been heard in a land where dinosaurs roamed. They will use a range of instruments to create the sounds and then aim to have the sounds linked to the dinosaur land models they have created. These will then feature as part of their reflection.



## Year 2: Why would a dinosaur not make a good pet?

### Year 2: Science, DT and Music Knowledge, Skills and Understanding

<b>Science</b> <b>Animals, All Living Things and their Habitats</b>	<b>Music</b>
<ul style="list-style-type: none"><li>• Can they match certain living things to the habitats they are found in?</li><li>• Can they explain the differences between living and non-living things?</li><li>• Can they describe some of the life processes common to plants and animals, including humans?</li><li>• Can they decide whether something is living, dead or non-living?</li><li>• Can they describe how a habitat provides for the basic needs of things living there?</li><li>• Can they describe what animals need to survive?</li><li>• Can they describe the life cycle of some living things? (e.g. egg, chick, chicken)</li><li>• Can they describe a range of different habitats?</li><li>• Can they describe how plants and animals are suited to their habitat?</li></ul>	<ul style="list-style-type: none"><li>• Can they order sounds to create a beginning, middle and end?</li><li>• Can they create music in response to &lt;different starting points&gt;?</li><li>• Can they choose sounds which create an effect?</li><li>• Can they use symbols to represent sounds?</li><li>• Can they improve their own work?</li></ul>
<b>Year 2 (Challenging)</b>	<b>DT</b>
<ul style="list-style-type: none"><li>• Can they name some characteristics of an animal that help it to live in a particular habitat?</li><li>• Can they describe what animals need to survive and link this to their habitats?</li><li>• Can they explain that animals reproduce in different ways?</li></ul>	<ul style="list-style-type: none"><li>• Can they make sensible choices as to which material to use for their constructions?</li><li>• Can they develop their own ideas from initial starting points?</li><li>• Can they consider how to improve their construction?</li></ul>

# Year 2: How will 5 a day help me to be healthy?

## KS1 Science (Y2 Animals, including humans)

- Notice that animals, including humans, have offspring, which grow into adults;
- Find out about and describe the basic needs of animals, including humans for survival (water, food and air);
- Describe the importance for humans of exercise, eating the right amount of different types of food, and hygiene.

*WOW: Remind children of the book 'Handa's Surprise' and have a bowl of exotic fruits from all over the world to talk about*

LC1 Why is it important for you to grow? What can you now do that you couldn't 5 years ago?

LC2 What is my Sports X Factor?

LC3 Why would it not be sensible for me to eat sweets everyday?

LC4 Which fruits grow naturally in our country?

LC5 Which fruits provide good opportunities for print work?

LC6 Where would we most likely find bananas, oranges and grapes growing?

LC7 Reflection: Can you make up a TV advert to convince children to eat more fruit?

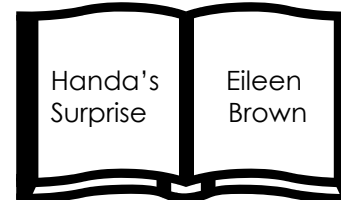
**Working Scientifically:** Children to conduct a survey to see how many children eat at least one piece of fruit each day and which is the most popular fruit. Observing, asking questions about what humans need to stay healthy

**Literacy Link:** Children to remind themselves of the book – 'Handa's Surprise' and then create an information text on one of the exotic fruits to be looked at.

**Expressive Art Link:** This LC will see children show their sporting prowess and be encouraged to perform in front of others. We anticipate gymnastics movements; dance; keepie ups, etc.

**Geographical Link:** Children will carry out research to find out which fruits grow where and set these out on a map.

**Creative Arts Link:** Opportunity here to link to the work of William Morris and to create their own unique print starting with a fruit or vegetable.



# Year 2: How could you be the next Jessica Ennis or Steven Gerrard? (use local role models)

## KS1 Science (Y2 Animals, including humans)

- Notice that animals, including humans, have offspring, which grow into adults;
- Find out about and describe the basic needs of animals, including humans for survival (water, food and air);
- Describe the importance for humans of exercise, eating the right amount of different types of food, and hygiene.

**WOW:** Show extracts of Jessica Ennis and Steven Gerrard in action and ask children to talk about their special skills.

LC1	What do Jennifer and Steven do to keep healthy?
LC2	What are Jessica and Steven especially good at and what is your Sports X Factor?
LC3	Why would it not be sensible for Jessica or Steven to eat sweets everyday?
LC4	Which fruits grow naturally in our country?
LC5	Which fruits provide good opportunities for print work?
LC6	Where would we most likely find bananas, oranges and grapes growing?
LC7	Reflection: Can you make up a TV advert to convince children to eat more healthily?

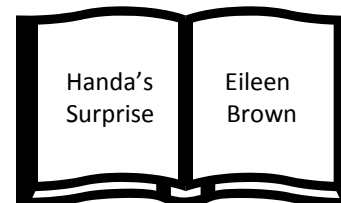
**Working Scientifically:** Children to conduct a survey to see how many children eat at least one piece of fruit each day and which is the most popular fruit. Observing, asking questions about what humans need to stay healthy

**Literacy Link:** Children to remind themselves of the book – 'Handa's Surprise' and then create an information text on one of the exotic fruits to be looked at.

**Expressive Art Link:** This LC3 will see children show their sporting prowess and be encouraged to perform in front of others. We anticipate gymnastics movements; dance; keepie ups, etc.

**Geographical Link:** Children will carry out research to find out which fruits grow where and set these out on a map.

**Creative Arts Link:** Opportunity here to link to the work of William Morris and to create their own unique print starting with a fruit or vegetable.



# Year 2: How will 5 a day help me to be healthy? or How could you be the next Jessica Ennis or Steven Gerrard?

## Year 2: Science, Dance and Art Knowledge, Skills and Understanding

### Science Animals including Humans

- Can they describe what animals need to survive?
- Can they explain that animals grow and reproduce?
- Can they describe the life cycle of some living things? (e.g. egg, chick, chicken)
- Can they explain the basic needs of animals, including humans?
- Can they describe why exercise, a balanced diet and hygiene is important for humans?
- Can they collect weather data about a local habitat and use it to explain the plants and animals they will find there?
- Can they explain how animals get their food and draw a simple food chain?

### Art & Design

- Can they create a print using pressing, rolling, rubbing and stamping?
- Can they create a print like a designer?
- Can they mix paint to create all the secondary colours?
- Can they mix and match colours, predicting outcomes?
- Can they mix their own brown?
- Can they make tints by adding white?
- Can they make tones by adding black?
- Can they use different kinds of materials on their collage and explain why they have chosen them?
- Can they use repeated patterns in their collage?

### Year 2 (Challenging)

- Can they classify living things into groups according to a range of criteria they have been given?

### Dance

- Can they perform body actions with control and co-ordination?
- Can they choose movements with different dynamic qualities to make a dance phrase that expresses an idea, mood or feeling?
- Can they remember and repeat dance phrases?
- Can they perform short dances, showing an understanding of expressive qualities?
- Can they describe the mood, feelings and expressive qualities of dance?
- Can they describe how dancing affects their body?
- Do they know why it is important to be active?
- Can they suggest ways they could improve their work?



# Year 2: What is your school made of?

## KS1 Science (Y2 Uses of Everyday Materials)

- Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, rock, brick, paper and cardboard for particular uses;
- Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

**WOW:** *Collect together a range of objects and use them to talk about what they are made of.*

LC1 How can you classify your toys taking account of the materials they are made of?

LC2 What are the main reasons for choosing materials for different parts of the school?

LC3 What else can you find that is made of: metal; glass; plastic and wood?

LC4 Can you think of the advantages and disadvantages of some common materials?

LC5 Can you make a toy using a range of materials and explain why you have chosen the materials?

LC6 How are different materials used for different musical instruments?

LC7 Reflection: Each group will take a different material and give a presentation about their chosen material.

**Working Scientifically:** comparing the uses of everyday materials in and around the school with materials found in other places (at home, on the journey to school, on visits, and in stories, rhymes and songs); observing closely, identifying and classifying the uses of different materials, and recording their observations.

**Literacy Link:** Children to make lists of advantages and disadvantages of different materials. They will also write descriptions of different materials.

**Numeracy Link:** Children to organise their classifications to take account of different sets, etc.

**Creative Arts Link:** Children will design, plan and make a toy and then evaluate its effectiveness.

**Expressive Arts Link:** Children will give careful consideration to the sound made by musical instruments made from different materials.



# Year 2: Which materials did they use to build the Trafford Centre? (use any large building close to your school)

## KS1 Science (Y2 Materials)

- Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, rock, brick, paper and cardboard for particular uses;
- Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

*WOW: Take a visit to the Trafford Centre and note the materials that have been used to build it.*

LC1	What is our school built of?
LC2	What are the main differences between our school and the Trafford Centre?
LC3	Can you make a list of all the different materials you saw at the Trafford Centre and explain why they have been used?
LC4	Can you design an outdoor play-area for the Trafford Centre?
LC5	Can you design and make a building (for a specific reason) using a range of materials and explain why you have chosen the materials?
LC6	How are different materials used for different musical instruments?
LC7	Reflection: Each group will take a different material and give a presentation about their chosen material.

**Working Scientifically:** comparing the uses of everyday materials in and around the Trafford Centre and school with materials found in other places (at home, on the journey to school, on visits, and in stories, rhymes and songs); observing closely, identifying and classifying the uses of different materials, and recording their observations.

**Literacy Link:** Children to make lists of advantages and disadvantages of different materials. They will also write descriptions of different materials.

**Numeracy Link:** Children to organise their classifications to take account of different sets, etc.

**Creative Arts Link:** Children will design, plan and make a building and then evaluate its effectiveness.

**Expressive Arts Link:** Children will give careful consideration to the sound made by musical instruments made from different materials.



# Year 2: What is your school made of? or Which materials did they use to build the Trafford Centre?

## Year 2: Science, DT and Music Knowledge, Skills and Understanding

### Science: Materials

- Can they distinguish between an object and the material from which it is made?
- Can they identify and name a range of everyday materials? (wood, plastic, metal, water, rock, brick, paper, glass)
- Can they describe the simple physical properties of a variety of everyday materials?
- Can they compare and classify a variety of materials based on their simple physical properties?

### Design Technology

- Can they think of ideas and plan what to do next?
- Can they choose the best tools and materials? Can they give a reason why these are best?
- Can they describe their design by using pictures, diagrams, models and words?
- Can they join things (materials/ components) together in different ways?
- What went well with their work?
- If they did it again, what would they want to improve?
- Can they measure materials to use in a model or structure?
- Can they join materials in different ways?
- Can they use joining, folding or rolling to make it stronger?

### Year 2 (Challenging)

- Can they describe the properties of different materials using words like, transparent or opaque, flexible, etc.?
- Can they sort materials into groups and say why they have sorted them in that way?
- Can they say which materials are natural and which are man made?

### Music

- Can they respond to different moods in music?
- Can they say how a piece of music makes them feel?
- Can they say whether they like or dislike a piece of music?
- Can they choose sounds to represent different things?
- Can they recognise repeated patterns?

# Scientific Knowledge, Skills and Understanding within the National Curriculum

Year 2 Science  
(non Statutory)

# Year 2: Where did that racket come from?

## KS1 Science (Y2 Sound)

- observe and name a variety of sources of sound, noticing that we hear with our ears
- recognise that sounds get fainter as the distance from the sound source increases.

WOW: Create a soundless environment and get children to write down their observations

LC1	How important are our ears and how loud is your shout?
LC2	In how many ways do we depend on sound in our everyday life?
LC3	Can you write your own audio book using 'talking tins'?
LC4	How can you design and make a musical instrument that can be played by others?
LC5	How can you make a simple telephone?
LC6	Which instrument was used to make that piece of music?
LC7	Reflection: Children to set up a music competition for Year 3 in which they have to guess which instrument/s was used for each piece of music.

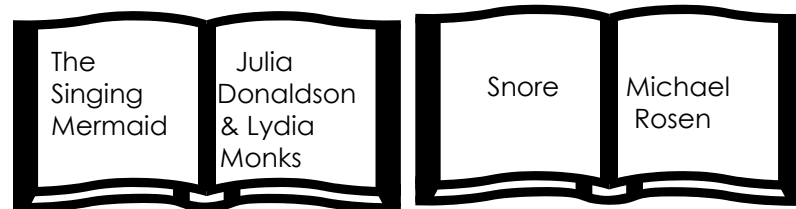
**Working Scientifically:** Children will compare different sound sources and look for patterns; carrying out tests to find the best places to locate fire bells in school.

During LC1 children will experiment with Chinese whispers and with covering ears with mufflers.

**Numeracy Link:** During LC1 children will be required to measure distances at which they can hear and cannot hear a partner shout. Children during LC 6 can create data based on the likes and dislikes of children's preferences for different types of music. During LC5 children will measure distances when trying out their own telephones

**Creative Art Link:** This LC will see children design and make their own musical instrument to a given specification.

**Expressive Arts:** This LC is an opportunity for children to listen to and appreciate a range of music from different genres and think about the instruments used.



# Year 2: Could you be the next Lightning McQueen?

## KS1 Science (Y2 Forces and Movement)

- describe how things move at different speeds, speed up and slow down, using simple comparisons, comparative vocabulary and superlative vocabulary.

*WOW: Children invited to bring in scooters, skateboards or roller blades to consider most appropriate for each occasion*

LC1	Why were we not born with wheels?
LC2	Why does a wheel or a ball help us to move faster?
LC3	How can you create a model that will move on its own?
LC4	What can you find out about different ways that people travel?
LC5	How can you take the song 'The wheels on the bus' and turn into a rap using your new knowledge?
LC6	Reflection: Can you put together an ICT presentation of the work you have done on making things go faster and slower?

**Working Scientifically:** Children to bring in a range of wheeled toys which can move and check which are most effective and efficient in different situations.

**Numeracy Link:** Children to create time trials for the wheeled structures and time them to see which is best suited for each task. Create a straight run; a slalom; different terrain, etc.

**Creative Art Link:** This LC will see children create their own vehicles and then test them to see what will help them move more quickly.

**Literacy Link:** Children will carry out research on different modes of transport starting with asking a range of questions which they will then research.

**Expressive Arts:** This LC is linked to performing a piece of music and adapting it to the new knowledge they now have.

