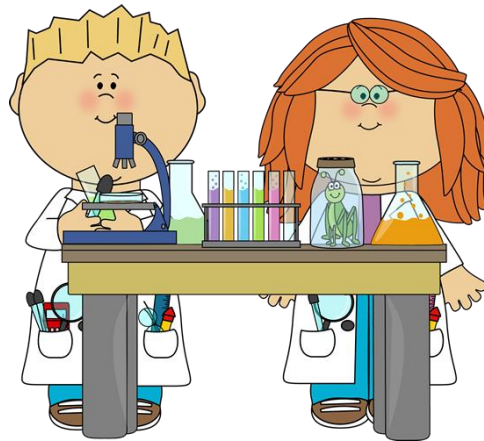


September 2021

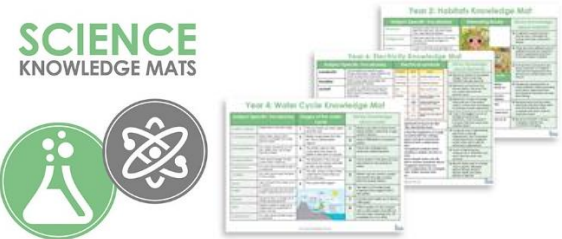
SCIENCE CURRICULUM MAP



Helen Townson

Our Lady of Lourdes Catholic Primary & Nursery School

Useful documents

National Curriculum	Birth to 5 Matters	Development Matters
		 Development Matters Non-statutory curriculum guidance for the early years foundation stage
Progression of Working Scientifically	Progression of Knowledge	Science Knowledge Mats
		
Curriculum Policy	CLEAPSS	Explorify
		

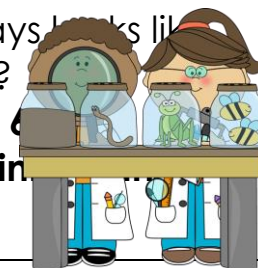
Key Learning

Application of Knowledge activities

Assessment evidence

Our Lady of Lourdes Catholic Primary & Nursery School

Cycle B	Autumn	Spring	Summer	
Little Acorns	What is special about me? Animals inc Humans	Seasons & Weather	Plants & Habitats	
Chestnut	Why are humans not like tigers? Animals How will five-a-day help to keep me healthy? Year 2 Humans	What would Traction Man use to build our school? Year 2 Everyday Materials	How quickly do plants grow? Year 2 Plants	Plants <u>How will five-a-day help to keep me healthy?</u> Humans
Willow	How could we cope without electricity for one day? Year 4 Electricity	What do rocks tell us about the way the Earth was formed? Year 3 Rocks and Soils	How can Usain Bolt run so fast? Year 3 Humans	Which wild animals and plants thrive in our local environment? Year 4 Living things and their Habitats
Oak	Why is our heart the most important pump that we own? Year 6 living things and their habitats	Is there anybody out there? Year 5 Earth and space	Have we always looked like this? Year 6 Evolution and inheritance	



Science Acorns & Chestnuts: Autumn

Why are humans not like tigers?

Communication and Language

- Learn new vocabulary.
- Ask questions to find out more and to check what has been said to them.
- Articulate their ideas and thoughts in well-formed sentences.
- Describe events in some detail.
- Use talk to work out problems and organise thinking and activities.
- Explain how things work and why they might happen.
- Use new vocabulary in different contexts.

Physical Development

Know and talk about the different factors that support their overall health and wellbeing:

- regular physical activity
- healthy eating
- toothbrushing
- sensible amounts of 'screen time'
- having a good sleep routine
- being a safe pedestrian

Understanding of the World: The World

- Explore the natural world around them.
- Describe what they see, hear and feel while they are outside.
- Recognise some environments that are different to the one in which they live.
- Understand the effect of changing seasons on the natural world around them.

Year 1 Animals including Humans

- **Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.**
- Recognise that humans are animals.
- Compare and describe differences in their own features (eye, hair, skin colour, etc.).
- Recognise that humans have many similarities

Year 2 Other Animals

- ~~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, and including pets).~~
- ~~Find out and describe how animals look different to one another.~~
- ~~Group together animals according to their different features.~~
- ~~Recognise similarities between animals: Structure: head, body, way of moving, senses, body covering, tail.~~

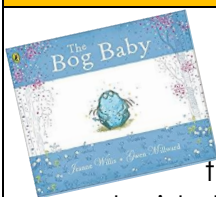
- ~~Animals have senses to explore the world around them and to help them to survive.~~
- ~~Recognise that animals need to be treated with care and sensitivity to keep them alive and healthy.~~
- ~~Animals are alive; they move, feed, grow, use their senses and Reproduce.~~

Working Scientifically

- Using 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 are; and using their senses to compare different textures, sounds and smells.

Prior Learning	Further Learning
Reception Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes. (Early Learning Goal)	• 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. (Y2 - Living things and their habitats) • Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. (Y6 - Living things and their habitats) • Give reasons for classifying plants and animals based on specific characteristics. (Y6 - Living things and their habitats)

WOW Moment:



Visit a zoo. Read Bog Baby, The Tiger who came to Tea and Zoo

When two small sisters go fishing to the magic pond, they find something much better than a frog or a newt. They find a bog baby. Small and blue with wings like a dragon, the girls decide to make him their secret. I won't tell if you won't. But the bog baby is a wild thing, and when he becomes poorly, the girls decide they must tell their mum. And she tells them the greatest lesson, if you really love something, you have to let it go.



Key Vocabulary

Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves
Names of animals experienced first-hand from each vertebrate group
Parts of the body including those linked to PSHE teaching
Senses – touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear and tongue

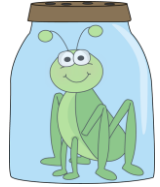
Learning Question 1	Would we call Bog Baby a wild animal?	• Can name a range of animals which includes animals from each of the vertebrate groups • Can describe the key features of these named animals • Make first-hand, close observations of animals from each of the groups. • Classify animals using a range of features. • Identify animals by matching them to named images. • Can use simple charts etc. to identify unknown animals
Learning Question 2	Why would it not be sensible for all animals to live in England?	• Can label key features on a picture/diagram • Can describe the key features of these named animals • Compare two animals from the same or different groups.

		• Can create a drawing of an imaginary animal labelling its key features • Can sort and group animals using similarities and differences
Learning Question 3	How are humans different from most animals?	• Can play and lead 'Simon says' • Can label parts of the body on pictures and diagrams • During PE lessons, can follow instructions involving parts of the body • Can explore objects using different senses • Compare two people. • Take measurements of parts of their body. • Compare parts of their own body. • Look for patterns between people e.g. Do people with big hands have big feet? • Classify people according to their features. • Investigate human senses e.g. Which part of my body is good for feeling, which is not? Which food/flavours can I identify by taste? Which smells can I match? • Can name body parts correctly when talking about measurements and comparisons e.g. "My arm is x straws long." "My arm is x straws long and my leg is y straws long. My leg is longer than my arm." "We both have hands, but his are bigger than mine." "These people have brown eyes and these have blue." • Can talk about their findings from investigations using appropriate vocabulary e.g. "My fingers are much better at feeling than my toes" "We found that the crisps all taste the same."
Learning Question 4	Is Bog Baby a carnivore, herbivore or omnivore?	• Can describe what a range of animals eat • Classify animals according to what they eat. • Can use secondary resources to find out what animals eat, including talking to experts e.g. pet owners, zookeepers etc.
Learning Question 5	What do we need to do to keep our pets happy?	• Can describe what a range of animals eat • Can state the basic needs of animals, including humans, for survival • Ask pet owners questions about how they look after their pet. • Can use secondary resources to find out what animals eat, including talking to experts e.g. pet owners, zookeepers etc. • Show what they know about looking after a baby/animal by creating a parenting/pet owners' guide
Learning Question 6	How can you sketch a pet using pencils and pastels? <i>Art: using sketching materials such as pencils of different gradients and pastels draw a let (their own or their friend's pet)</i>	• Can explore objects using different senses • Make first-hand close observations of parts of the body e.g. hands, eyes. • Can use first-hand close observations to make detailed drawings <i>Art: using sketching materials such as pencils of different gradients and pastels draw a let (their own or their friend's pet)</i>

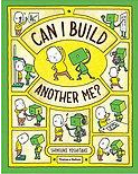
Learning Question 7	Reflection: can you create your own non fiction book on a 'visit to the zoo'?	• Can write descriptively about an animal • Can write a What am I? riddle about an animal • Can talk about their findings from investigations using appropriate vocabulary	
Children at the expected level of development will:		By the end of this unit we are expecting children to know:	Working Scientifically, by the end of the unit children will be stronger at:
Communication and Language Listening: Attention and Understanding ➤ Make comments about what they have heard and ask questions to clarify their understanding. Personal, Social and Emotional Development Managing Self ➤ Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices. Understanding the World: The Natural World ➤ Explore the natural world around them, making observations and drawing pictures of animals and plants. ➤ Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. ➤ Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.		➤ Classify a variety of animals according to fish, amphibians, reptiles, birds and mammals ➤ Know how to classify animals by what they eat (carnivore, herbivore and omnivore) ➤ Know how to sort living and non-living things ➤ Know how to name the parts of the human body that can be seen ➤ Know how to link the correct part of the human body to each sense	Statutory ELG: Managing Self ➤ Be confident to try new activities and show independence, resilience and perseverance in the face of challenge Statutory ELG: Self Regulation ➤ Set and work towards simple goals, being able to wait for what they want and control their immediate impulses when appropriate KS1 ➤ Asking simple scientific questions ➤ Using simple equipment to make observations ➤ Carrying out simple tests ➤ Identify and classify and things ➤ Explaining to others what they have found out ➤ Using simple data to answer questions
Key Learning			
Animals vary in many ways having different structures e.g. wings, tails, ears etc. They also have different skin coverings e.g. scales, feathers, hair. These key features can be used to identify them.			
Animals eat certain things - some eat other animals, some eat plants, some eat both plants and animals.			
Humans have key parts in common, but these vary from person to person. Humans (and other animals) find out about the world using their senses. Humans have five senses – sight, touch, taste, hearing and smelling. These senses are linked to particular parts of the body.			
Common Misconceptions			

Some children may think:

- only four-legged mammals, such as pets, are animals
- humans are not animals
- insects are not animals
- all 'bugs' or 'creepy crawlies', such as spiders, are part of the insect group
- amphibians and reptiles are the same.



Links to texts



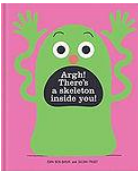
Can I Build Another Me? **Shinsuke Yoshitake**

This quirky picture book tells the story of a boy who wishes to make a robot clone of himself. Before he can, he needs to examine exactly what it is that makes him him. This thought-provoking book with detailed illustrations is lots of fun and provides a good stimulus for discussion or classwork about the uniqueness of each individual.



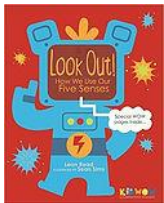
Funnybones **Janet & Allan Ahlberg**

Funnybones follows the adventures of a well-loved family of skeletons. These classic stories are full of humour and provide a great curriculum link into finding out about what lies inside the human body.



Argh! There's a Skeleton Inside You! **Idan Ben-Barak & Julian Frost**

The story starts on the endpapers as two aliens (Quog and Oort) crash land their spaceship on Earth and need help in order to get to a birthday party on time. You, the reader, help them reach Kevin's party by interacting with the book and teaching them about hands, skeletons, muscles and nerves. It is a great premise and children will enjoy such interactions as placing their hands on the page to be "scanned" to show muscles and demonstrating how nerves work by turning over a page with their eyes closed.



Look Out! How We Use Our Five Senses! **Leon Read and Sean Sims**

We love information texts with interactive elements and this one does not disappoint! The book explores the five senses and what each sense is for using fun characters, bright illustrations and simple infographics. When you hold up certain pages to the light (or shine a torch through), extra details are revealed. This book, along with the other book in the series Atchoo! How We Catch A Cold available from Amazon, would make a great addition to classroom libraries in Early Years and KS1.

How will five-a-day help to keep us healthy?

Communication and Language

- Learn new vocabulary.
- Ask questions to find out more and to check what has been said to them.
- Articulate their ideas and thoughts in well-formed sentences.
- Describe events in some detail.
- Use talk to work out problems and organise thinking and activities.
- Explain how things work and why they might happen.
- Use new vocabulary in different contexts.

Physical Development

Know and talk about the different factors that support their overall health and wellbeing:

- regular physical activity
- healthy eating
- toothbrushing
- sensible amounts of 'screen time'
- having a good sleep routine
- being a safe pedestrian

Understanding of the World: The World

- Explore the natural world around them.
- Describe what they see, hear and feel while they are outside.
- Recognise some environments that are different to the one in which they live
- Understand the effect of changing seasons on the natural world around them.

Year 2 Animals including Humans

- Noticed 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 of human of exercise, eating the right amount of different types of food, and hygiene

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

Prior Learning

Physical Development

- Make healthy choices about food, drink, activity and toothbrushing.

Understanding the World

- Use all their senses in hands-on exploration of natural materials.
- Explore collections of materials with similar and/or different properties.
- Talk about what they see, using a wide vocabulary.
- Begin to make sense of their own life story and family's history.
- Explore how things work.

Future Learning

- Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. **(Y3 – Animals, including humans)**
- Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. **(Y5 – Living things and their habitats)**
- Describe the life process of reproduction in some plants and animals. **(Y5 – Living things and their habitats)**
- Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. **(Y6 – Animals, including humans)**

- Plant seeds and care for growing plants.
- Understand the key features of the life cycle of a plant and an animal.
- Begin to understand the need to respect and care for the natural environment and all living things.
- Explore and talk about different forces they can feel.
- Talk about the differences between materials and changes they notice.
- Identify and name a variety of common animals that are carnivores, herbivores and omnivores. **(Y1 – Animals, including humans)**
- Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. **(Y1 – Animals, including humans)**



WOW Moment: remind children of the book **Handa's surprise** and have a bowl of exotic fruits from all over the world to talk about create an information text on one of the exotic fruits to be looked at. **Supertato**

Key Vocabulary

Offspring, reproduction, growth, child, young/old stages (examples – chick/hen, baby/child/adult, caterpillar/butterfly), exercise, heartbeat, breathing, hygiene, germs, disease, food types (examples – meat, fish, vegetables, bread, rice, pasta)

Learning Question 1

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

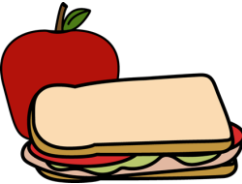
- Can describe how animals, including humans, have offspring which grow into adults, using the appropriate names for the stages
- Ask people questions and use secondary sources to find out about the life cycles of some animals.
- Observe animals growing over a period of time e.g. chicks, caterpillars, a baby.
- Ask questions of a parent about how they look after their baby.
- Can describe, including using diagrams, the life cycle of some animals, including humans, and their growth to adults e.g. by creating a life cycle book for a younger child
- Can measure/observe how animals, including humans, grow.

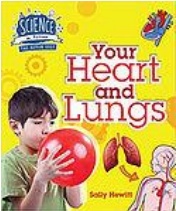
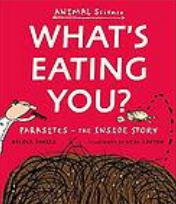
Learning Question 2

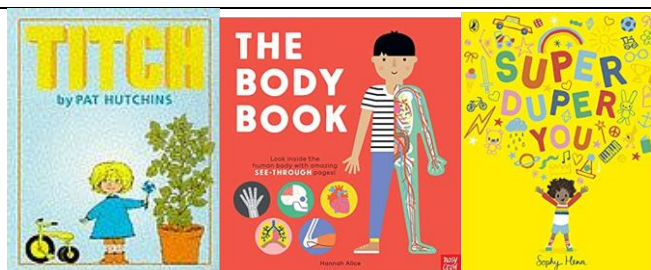
What is my sports X factor?

- Can state the importance for humans of exercise
- Explore the effect of exercise on their bodies.
- Explain how development and health might be affected by differing conditions and needs being met/not met

		Links: expressive art show their support in Powys and be encouraged to perform in front of others. Gymnastic movements, dance, keepie-uppies etc
Learning Question 3	Why would it not be sensible for me to eat sweets every day?	• Can state the importance for humans of eating the right amounts of different types of food • Can name foods in each section of the Eatwell Guide • Classify food in a range of ways, including using the Eatwell Guide. • Explain how development and health might be affected by differing conditions and needs being met/not met
Learning Question 4	Which fruits grow naturally in our country?	• Can name foods in each section of the Eatwell Guide • Classify food in a range of ways, including using the Eatwell Guide.
Learning Question 5	Which fruits provide good opportunities for art work? Links: opportunity to link to the work of Acriboldo and to create their own unique piece of art starting with a fruit or vegetable	• Can name foods in each section of the Eatwell Guide • Classify food in a range of ways, including using the Eatwell Guide.
Learning Question 6	Where would we most likely find bananas, oranges and grapes growing? Link: geography carry out research to find out which fruits grow where and set these out on a map	• Can state the importance for humans of exercise, eating the right amounts of different types of food, and hygiene • Can name foods in each section of the Eatwell Guide • Classify food in a range of ways, including using the Eatwell Guide.
Learning Question 7	How can you design and make your own fruit salad? Link: design and make a fruit salad	• Can state the importance for humans of eating the right amounts of different types of food, and hygiene • Can name foods in each section of the Eatwell Guide • Investigate washing hands, using glitter gel. • Explain how development and health might be affected by differing conditions and needs being met/not met
Learning Question 8	Reflection; can you make up a TV advert to convince children eat more fruit?	• Can state the importance for humans of exercise, eating the right amounts of different types of food, and hygiene • Can name foods in each section of the Eatwell Guide • Classify food in a range of ways, including using the Eatwell Guide. • Explain how development and health might be affected by differing conditions and needs being met/not met
Children at the expected level of development will:		By the end of this unit we are expecting children to know: By the end of the unit children will be stronger at:

Communication and Language-Listening: Attention and Understanding ➤—Make comments about what they have heard and ask questions to clarify their understanding. Personal, Social and Emotional Development-Managing Self ➤—Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices. Understanding the World: The Natural World ➤—Explore the natural world around them, making observations and drawing pictures of animals and plants. ➤—Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. ➤—Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter	➤—Know the basic stages of the life cycle of animals of (including humans) ➤—No white exercise, a balanced diet and good hygiene are important for humans ➤—Know what is reasonable for someone of their age to do with regards to exercise ➤—Know that certain people can be very good at certain sports but not others ➤—Know why certain foods may taste nice but eating too much of it can be unhealthy ➤—Know which fruits grow naturally in the UK	➤—Asking simple scientific questions ➤—Using simple equipment to make observations ➤—Carrying out simple tasks ➤—Identifying and classifying things ➤—Explaining to others what I have found out  ➤—Using simple data to answer questions
Key Learning		
Animals, including humans, have offspring which grow into adults. In humans and some animals, these offspring will be young, such as babies or kittens, that grow into adults. In other animals, such as chickens or insects, there may be eggs laid that hatch to young or other stages which then grow to adults. The young of some animals do not look like their parents e.g. tadpoles. All animals, including humans, have the basic needs of feeding, drinking and breathing that must be satisfied in order to survive. To grow into healthy adults, they also need the right amounts and types of food and exercise. Good hygiene is also important in preventing infections and illnesses.		
Common Misconceptions		
Some children may think: ○—an animal's habitat is like its 'home' ○—all animals that live in the sea are fish ○—respiration is breathing ○—breathing is respiration.		
Links to texts		
	The Growing Story Ruth Krauss and Helen Oxenbury The Growing Story is an enchanting story about a boy who watched living things grow and change through the seasons. Just as he begins to think that he will be small forever, he learns to see the signs that he is growing and changing too.	

	Your Heart and Lungs (Science in Action) Sally Hewitt An accessible information text perfectly pitched for KS1. This book answers questions about how the hearts and lungs work and what their function is in the human body. Complete with pictures, diagrams and suggestions for activities and investigations, this is a great book to support the human body science topic in KS1. You may also like the other books in the series, <i>Your Bones</i> (available here), <i>Your Brain</i> (available here) and <i>Your Digestive System</i> (available here).
	What's Eating You? Nicola Davies and Neal Layton All about the tiny creatures that live on or in human and animal bodies. Find out about the parasites that live in skin, hair, fur, feathers, blood, guts, livers, hearts and lungs. Filled with diagrams, cartoons and easy-to-read chunks of text, this information book is accessible and engaging.
	Oliver's Vegetables Vivian French and Alison Bartlett This popular picture book tells the story of fussy eater Oliver, who will not eat anything but chips. One day Grandpa sets him a challenge that helps him to learn to try new foods from the vegetable patch and Oliver is surprised by what he finds out



Science Acorns & Chestnuts: Spring

What would traction man use to build our school?

Communication and Language • Learn new vocabulary. • Ask questions to find out more and to check what has been said to them. • Articulate their ideas and thoughts in well-formed sentences. • Describe events in some detail. • Use talk to work out problems and organise thinking and activities. • Explain how things work and why they might happen. • Use new vocabulary in different contexts. Physical Development Know and talk about the different factors that support their overall health and wellbeing: • regular physical activity • healthy eating • toothbrushing • sensible amounts of 'screen time' • having a good sleep routine • being a safe pedestrian Understanding of the World: The World • Explore the natural world around them. • Describe what they see, hear and feel while they are outside. • Recognise some environments that are different to the one in which they live. • Understand the effect of changing seasons on the natural world around them	KS1 Uses of every day materials • Distinguish between an object and the material 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. • Identify and compare the suitability of a variety of every day and materials including wood, metal, plastic, Glass, rock, Rick, paper and cardboard for particular uses • Find out how the shapes of solid objects made from some materials can be changed by squash, twisting, bending and stretching Working Scientifically • Comparing the uses of everyday materials in and around the school with materials found in other places (at home, 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
Prior Learning	Future Learning
• Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes. (Early Learning Goal)	• Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Y2 - Uses of everyday materials) • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses of everyday materials)

WOW Moment:

Collect together a range of objects and use them to talk about what they are made of.
 Have a material treasure hunt.
 Use the box links to traction man by Mini Grey to provide you with several literacy opportunities.

Key Vocabulary

Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through
 Names of materials – wood, metal, plastic, glass, brick, rock, paper, cardboard
 Properties of materials – as for Year 1 plus opaque, transparent and translucent, reflective, non-reflective, flexible, rigid
 Shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching

Learning Question 1	How can you classify your toys taking account of the materials they are made of?	• Can name an object, say what material it is made from, identify its properties and make a link between the properties and a particular use • Can label a picture or diagram of an object made from different materials • Classify objects made of one material in different ways e.g. a group of object made of metal. • Classify in different ways one type of object made from a range of materials e.g. a collection of spoons made of different materials. • Classify materials. • Can sort objects and materials using a range of properties
Learning Question 2	What are the main reasons for choosing materials for different parts of the school buildings,?	• Can describe the properties of different materials • Classify materials based on their properties. • Can sort materials using a range of properties • Can recognise that a material may come in different forms which have different properties • Whilst changing the shape of an object can describe the action used • Can use the words flexible and/or stretchy to describe materials that can be changed in shape and stiff and/or rigid for those that cannot • Test the properties of materials for particular uses e.g. compare the stretchiness of fabrics to select the most appropriate for Elastigirl's costume, test materials for waterproofness to select the most appropriate for a rain hat • Can begin to choose an appropriate method for testing a material for a particular property
Learning Question 3	What are the advantages and disadvantages of some common materials?	• Can describe the properties of different materials • Test the properties of objects e.g. absorbency of cloths, strength of party hats made of different papers, stiffness of paper plates, waterproofness of shelters. • Can choose an appropriate method for testing an object for a particular property
Learning Question 4	How can you design and make your own traction	• For a given object can identify what properties a suitable material needs to have • Make suggestions about alternative materials for a purpose that are both suitable and unsuitable • Can explain using the key properties why a material is suitable or not suitable for a purpose

	man using a variety of different materials?	Link; Create their own traction man giving much care to the materials they will choose
Learning Question 5	How can you design a perfect playground using a range of materials and explain why you have chosen the material?	• For a given object can identify what properties a suitable material needs to have • Make suggestions about alternative materials for a purpose that are both suitable and unsuitable • Can use their test evidence to select appropriate material for a purpose e.g. Which material is the best for a rain hat? Link; in groups go onto plan, design, make and evaluate a playground thinking of the materials they chose.
Learning Question 6	Reflection; each group will take a different material and give a presentation about their chosen material.	• Can describe the properties of different materials • Test the properties of objects e.g. absorbency of cloths, strength of party hats made of different papers, stiffness of paper plates, waterproofness of shelters. • Can use their test evidence to answer the questions about properties e.g. "Which cloth is the most absorbent?"
Children at the expected level of development will:		By the end of this unit we are expecting children to know:
Communication and Language Listening: Attention and Understanding ➤ Make comments about what they have heard and ask questions to clarify their understanding. Personal, Social and Emotional Development Managing Self ➤ Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices. Understanding the World: The Natural World ➤ Explore the natural world around them, making observations and drawing pictures of animals and plants. ➤ Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. ➤ Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter		• Know how materials can be changed by squashing, bending, twisting and stretching • No way material might or might not be used for a specific job • Identify and name a range of materials including wood, metal, plastic, glass, brick, rock, paper and cardboard 
		Working Scientifically, by the end of the unit children will be stronger at: Statutory ELG: Managing Self • Set and work towards simple goals, being able to wait for what they want • and control their immediate impulses when appropriate Statutory ELG: Managing Self • Be confident to try new activities and show independence, resilience and perseverance in the face of challenge Statutory ELG: Self Regulation • Set and work towards simple goals, being able to wait for what they want and control their immediate impulses when appropriate KS1 • Asking simple scientific questions • Using simple equipment to make observations • Carrying out simple tests • Identifying and classifying things • Explaining to others what I have found out • Using simple data to answer questions
Common misconceptions		

Some children may think:

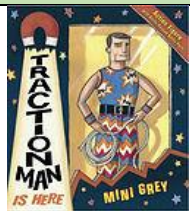
- only fabrics are materials
- only building materials are materials
- only writing materials are materials
- the word 'rock' describes an object rather than a material
- 'solid' is another word for hard.
- only fabrics are materials
- only building materials are materials
- only writing materials are materials
- the word rock describes an object rather than a material
- solid is another word for hard.

Key Learning

All objects are made of one or more materials. Some objects can be made from different materials e.g. plastic, metal or wooden spoons. Materials can be described by their properties e.g. shiny, stretchy, rough etc. Some materials e.g. plastic can be in different forms with very different properties.

All objects are made of one or more materials that are chosen specifically because they have suitable properties for the task. For example, a water bottle is made of plastic because it is transparent allowing you to see the drink inside and waterproof so that it holds the water. When choosing what to make an object from, the properties needed are compared with the properties of the possible materials, identified through simple tests and classifying activities. A material can be suitable for different purposes and an object can be made of different materials. Objects made of some materials can be changed in shape by bending, stretching, squashing and twisting. For example, clay can be shaped by squashing, stretching, rolling, pressing etc. This can be a property of the material or depend on how the material has been processed e.g. thickness.

Links to text



Traction Man Is Here **Mini Grey**

This is a high quality text full of detailed comic-style illustrations. It follows the adventures of an Action-Man style hero with an outfit for every occasion. His daily superhero challenges include rescuing lost toys, diving in the sieve-wreck and saving distressed damsels. Highly recommended. CLPE offer a free teaching sequence for KS1 based on this book



Questions and Answers About Plastic **Katie Daynes & Marie-Eve Tremblay**

This hardback non-fiction with interactive flaps covers a hot topic among young people, taking a balanced approach that encourages readers to ask and answer important questions about the pros and cons of plastic use. It's a well-presented and informative book that would be perfect for a KS1 or lower KS2 class who are learning about materials or the environment. On each page, there are questions and beneath each flap is a clear answer, which has some useful subject-specific vocabulary and a good balance between why plastic is useful and why it is harmful to the environment.



Somebody Swallowed Stanley
Sarah Roberts & Hannah Peck

This is a wonderful book that follows the cycle of a mysteriously individual jellyfish-like creature named Stanley as he travels through the ocean. As he meets other sea creatures, differences between him and them start to become apparent - like his two handles and colourful stripes. Various creatures swallow Stanley as he tenaciously continues on his journey until he is found by a human, on the shore, who chooses to put Stanley to much better use. A fun and brightly illustrated picture book with a clear message that plastic does not belong in the sea.

Science Acorns & Chestnuts: Summer

How quickly do plants grow?

Communication and Language • Learn new vocabulary. • Ask questions to find out more and to check what has been said to them. • Articulate their ideas and thoughts in well-formed sentences. • Describe events in some detail. • Use talk to work out problems and organise thinking and activities. • Explain how things work and why they might happen. • Use new vocabulary in different contexts. Physical Development Know and talk about the different factors that support their overall health and wellbeing: • regular physical activity • healthy eating • toothbrushing • sensible amounts of 'screen time' • having a good sleep routine • being a safe pedestrian Understanding of the World: The World • Explore the natural world around them. • Describe what they see, hear and feel while they are outside. • Recognise some environments that are different to the one in which they live. • Understand the effect of changing seasons on the natural world around them	KS1 Plants • Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. • Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. • Observe and describe how seeds and bulbs grow into mature plants • Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy Working Scientifically • Peoples might work scientifically by; observing closely, haps using a magnifying glasses, and comparing and contrasting familiar plants • Describing how they were able to identify and group them, and drawing diagrams showing the parts the different plants including trees • Peoples might keep records of house plants have changed over time, for example the leaves falling off a plant and pubs opening and compare and contrast what they have found out about different plan
Prior Learning	Future Learning
Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary	• Observe and describe how seeds and bulbs grow into mature plants. (Y2 - Plants)

from one another. They make observations of animals and plants and explain why some things occur and talk about changes. (Early Learning Goal)		• Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. (Y2 - Plants) • Identify and name a variety of plants and animals in their habitats, including microhabitats. (Y2 - Living things and their habitats) • Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. (Y3 - Plants) • Investigate the way in which water is transported within plants. (Y3 Plants)
WOW Moment:		
read Jack and the baked Bean stalk and discuss how fast plants can grow.		
Key Vocabulary		
Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud Names of trees in the local area Names of garden and wild flowering plants in the local area light, shade, sun, warm, cool, water, grow, healthy		
Learning Question 1	What do you notice about different seeds and bulbs?	• Can describe some of the key features of these trees and plants e.g. the shape of the leaves, the colour of the flower/blossom • Make close observations of seeds and bulbs. • Classify seeds and bulbs. • Can spot similarities and difference between bulbs and seeds • Can point to and name the parts of a plant, recognising that they are not always the same e.g. leaves and stems may not be green • Compare two leaves, seeds, flowers etc. • Can sort and group parts of plants using similarities and differences
Learning Question 2	How can you set up an experiment to find out what seeds and bulbs need to grow?	• Can describe how plants that they have grown from seeds and bulbs have developed over time • Can identify plants that grew well in different conditions • Make observations of how plants change over a period of time. • Make close observations and measurements of their plants growing from seeds and bulbs. • Make comparisons between plants as they grow • Look after the plants as they grow – weeding, thinning, watering etc. • Can nurture seeds and bulbs into mature plants identifying the different requirements of different plant
Learning Question 3	What can you grow in a plot of land 1 m x 1 m	• Research and plan when and how to plant a range of seeds and bulbs.

Learning Question 4	What do the seeds of different trees look like?	• Can name trees and other plants that they see regularly • Classify leaves, seeds, flowers etc. using a range of characteristics. • Identify plants by matching them to named images. • Can use simple charts etc. to identify plants
Learning Question 5	Why will it take longer for seeds from trees to grow to maturity than flower seeds?	• Can point out trees which lost their leaves and those that kept them the whole year • Make close observations of leaves, seeds, flowers etc. • Can collect information on features that change during the year
Learning Question 6	How can we capture the beauty of some of our plants and leaves?	• Make close observations of leaves, seeds, flowers etc. • When further afield, spot plants that are the same as those in the local area studied regularly, describing the key features that helped them. Link: use paints to capture the beauty of our native trees and their leaves
Learning Question 7	Reflection; use information gained during this topic to write a book about growing plants in a small garden	• Can describe how plants that they have grown from seeds and bulbs have developed over time • Look after the plants as they grow – weeding, thinning, watering etc. • Can use photographs to talk about how plants change over time
Children at the expected level of development will:		By the end of this unit we are expecting children to know:
Communication and Language Listening: Attention and Understanding ➤ Make comments about what they have heard and ask questions to clarify their understanding. Personal, Social and Emotional Development Managing Self ➤ Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices. Understanding the World: The Natural World ➤ Explore the natural world around them, making observations and drawing pictures of animals and plants. ➤ Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.		Working Scientifically, by the end of the unit children will be stronger at: Statutory ELG: Managing Self ➤ Set and work towards simple goals, being able to wait for what they want ➤ and control their immediate impulses when appropriate Statutory ELG: Managing Self ➤ Be confident to try new activities and show independence, resilience and perseverance in the face of challenge Statutory ELG: Self Regulation • Set and work towards simple goals, being able to wait for what they want and control their immediate impulses when appropriate KS1 • Asking simple scientific questions • Using simple equipment to make observations • Carrying out simple tests • Identifying and classifying things • Explaining to others what I have found out • Using simple data to answer questions

- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter

Common Misconceptions

Some children may think:

- plants are flowering plants grown in pots with coloured petals and leaves and a stem
- trees are not plants
- all leaves are green
- all stems are green
- a trunk is not a stem
- blossom is not a flower.
- plants are not alive as they cannot be seen to move
- seeds are not alive
- all plants start out as seeds
- seeds and bulbs need sunlight to germinate.



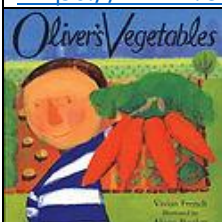
Key Learning

Growing locally, there will be a vast array of plants which all have specific names. These can be identified by looking at the key characteristics of the plant. Plants have common parts, but they vary between the different types of plants. Some trees keep their leaves all year while other trees drop their leaves during autumn and grow them again during spring.

Plants may grow from either seeds or bulbs. These then germinate and grow into seedlings which then continue to grow into mature plants. These mature plants may have flowers which then develop into seeds, berries, fruits etc. Seeds and bulbs need to be planted outside at particular times of year and they will germinate and grow at different rates. Some plants are better suited to growing in full sun and some grow better in partial or full shade. Plants also need different amounts of water and space to grow well and stay healthy.

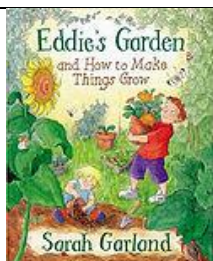
Links to texts

<https://www.booksfortopics.com/growing-ks1>



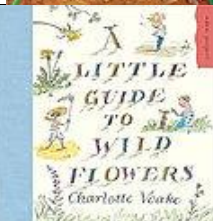
Oliver's Vegetables
Vivian French and Alison Bartlett

This popular picture book tells the story of fussy eater Oliver, who will not eat anything but chips. One day Grandpa sets him a challenge that helps him to learn to try new foods from the vegetable patch and Oliver is surprised by what he finds out.



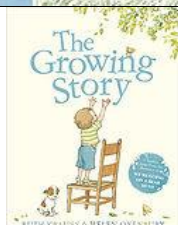
Eddie's Garden: and How to Make Things Grow
Sarah Garland

This picture book tells the story of a little boy called Eddie who wanted to make a garden. Eddie learns how to plant seeds and patiently care for them, as his garden becomes filled with all sorts of plants, flowers and vegetables.



A Little Guide to Wild Flowers
Charlotte Voake

Learn how to identify different wild flowers and find out more about what is growing in your local area. The informative guide is accompanied by watercolour illustrations and is a good choice of book if you want to get out and about to do some plant-spotting.



The Growing Story
Ruth Krauss & Helen Oxenbury

This is an enchanting story about a boy who watched living things grow and change through the seasons. Just as he begins to think that he will be small forever, he learns to see the signs that he is growing and changing too.
Also features on: All About Me Booklist

Science Acorns & Chestnuts: Summer

How will five-a-day help to keep us healthy?

Communication and Language

- Learn new vocabulary.
- Ask questions to find out more and to check what has been said to them.
- Articulate their ideas and thoughts in well-formed sentences.
- Describe events in some detail.
- Use talk to work out problems and organise thinking and activities.
- Explain how things work and why they might happen.
- Use new vocabulary in different contexts.

Physical Development

Know and talk about the different factors that support their overall health and wellbeing:

- regular physical activity
- healthy eating
- toothbrushing
- sensible amounts of 'screen time'
- having a good sleep routine
- being a safe pedestrian

Understanding of the World: The World

- Explore the natural world around them.
- Describe what they see, hear and feel while they are outside.
- Recognise some environments that are different to the one in which they live
- Understand the effect of changing seasons on the natural world around them.

Animals including Humans

- Noticed 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 of human of exercise, eating the right amount of different types of food, and hygiene

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

Prior Learning

Physical Development

- Make healthy choices about food, drink, activity and toothbrushing.

Understanding the World

- Use all their senses in hands-on exploration of natural materials.
- Explore collections of materials with similar and/or different properties.
- Talk about what they see, using a wide vocabulary.
- Begin to make sense of their own life-story and family's history.
- Explore how things work.
- Plant seeds and care for growing plants.

Future Learning

- Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. (Y3 - Animals, including humans)
- Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. (Y5 - Living things and their habitats)

• <u>Understand the key features of the life cycle of a plant and an animal.</u> • <u>Begin to understand the need to respect and care for the natural environment and all living things.</u> • <u>Explore and talk about different forces they can feel.</u> • <u>Talk about the differences between materials and changes they notice.</u> • <u>Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals, including humans)</u> • <u>Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals, including humans)</u>	• <u>Describe the life process of reproduction in some plants and animals. (Y5 - Living things and their habitats)</u> • <u>Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. (Y6 - Animals, including humans)</u>
---	---



WOW Moment: remind children of the book **Handa's surprise** and have a bowl of exotic fruits from all over the world to talk about create an information text on one of the exotic fruits to be looked at. **Supertato**

Key Vocabulary

Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly), exercise, heartbeat, breathing, hygiene, germs, disease, food types (examples – meat, fish, vegetables, bread, rice, pasta)

<u>Learning Question 1</u>	<u>Why is it important for you to grow? What can you now do that you couldn't five years ago?</u>	• <u>Can describe how animals, including humans, have offspring which grow into adults, using the appropriate names for the stages</u> • <u>Ask people questions and use secondary sources to find out about the life cycles of some animals.</u> • <u>Observe animals growing over a period of time e.g. chicks, caterpillars, a baby.</u> • <u>Ask questions of a parent about how they look after their baby.</u> • <u>Can describe, including using diagrams, the life cycle of some animals, including humans, and their growth to adults e.g. by creating a life cycle book for a younger child</u> • <u>Can measure/observe how animals, including humans, grow.</u>
<u>Learning Question 2</u>	<u>What is my sports X factor?</u>	• <u>Can state the importance for humans of exercise</u> • <u>Explore the effect of exercise on their bodies.</u> • <u>Explain how development and health might be affected by differing conditions and needs being met/not met</u> Links: expressive art show their support in Powys and be encouraged to perform in front of others. Gymnastic movements, dance, keepie-uppies etc
<u>Learning Question 3</u>	<u>Why would it not be sensible for me to eat sweets every day?</u>	• <u>Can state the importance for humans of eating the right amounts of different types of food</u> • <u>Can name foods in each section of the Eatwell Guide</u>

		• <u>Classify food in a range of ways, including using the Eatwell Guide.</u> • <u>Explain how development and health might be affected by differing conditions and needs being met/not met</u>
<u>Learning Question 4</u>	<u>Which fruits grow naturally in our country?</u>	• <u>Can name foods in each section of the Eatwell Guide</u> • <u>Classify food in a range of ways, including using the Eatwell Guide.</u>
<u>Learning Question 5</u>	<u>Which fruits provide good opportunities for art work?</u>	• <u>Can name foods in each section of the Eatwell Guide</u> • <u>Classify food in a range of ways, including using the Eatwell Guide.</u> <u>Links:</u> <u>opportunity to link to the work of Acrimboldo and to create their own unique piece of art starting with a fruit or vegetable</u>
<u>Learning Question 6</u>	<u>Where would we most likely find bananas, oranges and grapes growing?</u>	• <u>Can state the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</u> • <u>Can name foods in each section of the Eatwell Guide</u> • <u>Classify food in a range of ways, including using the Eatwell Guide.</u> <u>Link:</u> <u>geography carry out research to find out which fruits grow where and set these out on a map</u>
<u>Learning Question 7</u>	<u>How can you design and make your own fruit salad?</u> <u>Link:</u> <u>design and make a fruit salad</u>	• <u>Can state the importance for humans of eating the right amounts of different types of food, and hygiene</u> • <u>Can name foods in each section of the Eatwell Guide</u> • <u>Investigate washing hands, using glitter gel.</u> • <u>Explain how development and health might be affected by differing conditions and needs being met/not met</u>
<u>Learning Question 8</u>	<u>Reflection;</u> <u>can you make up a TV advert to convince children eat more fruit?</u>	• <u>Can state the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</u> • <u>Can name foods in each section of the Eatwell Guide</u> • <u>Classify food in a range of ways, including using the Eatwell Guide.</u> • <u>Explain how development and health might be affected by differing conditions and needs being met/not met</u>
<u>Children at the expected level of development will:</u>		<u>By the end of this unit we are expecting children to know:</u>
<u>Communication and Language Listening: Attention and Understanding</u> <u>➤ Make comments about what they have heard and ask questions to clarify their understanding.</u> <u>Personal, Social and Emotional Development Managing Self</u>		<u>➤ Know the basic stages of the life-cycle of animals of (including humans)</u> <u>➤ No white exercise, a balanced diet and good</u>
		<u>By the end of the unit children will be stronger at:</u>
		<u>➤ Asking simple scientific questions</u> <u>➤ Using simple equipment to make observations</u> <u>➤ Carrying out simple tasks</u>

- Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.

Understanding the World: The Natural World

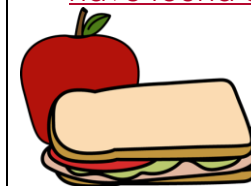
- Explore the natural world around them, making observations and drawing pictures of animals and plants.
- Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter

hygiene are important for humans

- Know what is reasonable for someone of their age to do with regards to exercise
- Know that certain people can be very good at certain sports but not others
- Know why certain foods may taste nice but eating too much of it can be unhealthy
- Know which fruits grow naturally in the UK

- Identifying and classifying things

- Explaining to others what I have found out



- Using simple data to answer questions

Key Learning

Animals, including humans, have offspring which grow into adults. In humans and some animals, these offspring will be young, such as babies or kittens, that grow into adults. In other animals, such as chickens or insects, there may be eggs laid that hatch to young or other stages which then grow to adults. The young of some animals do not look like their parents e.g. tadpoles.

All animals, including humans, have the basic needs of feeding, drinking and breathing that must be satisfied in order to survive. To grow into healthy adults, they also need the right amounts and types of food and exercise.

Good hygiene is also important in preventing infections and illnesses.

Common Misconceptions

Some children may think:

- an animal's habitat is like its 'home'
- all animals that live in the sea are fish
- respiration is breathing
- breathing is respiration.

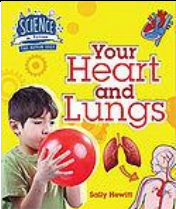
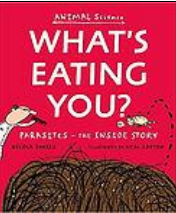
Links to texts

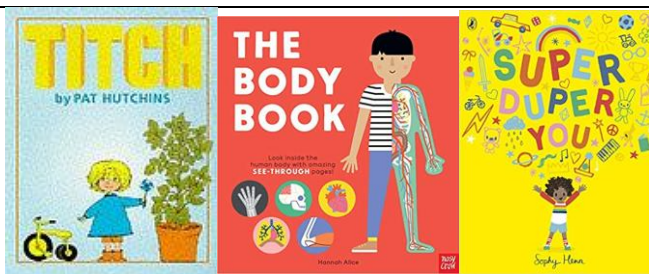


The Growing Story

Ruth Krauss and Helen Oxenbury

The Growing Story is an enchanting story about a boy who watched living things grow and change through the seasons. Just as he begins to think that he will be small forever, he learns to see the signs that he is growing and changing too.

	<u>Your Heart and Lungs (Science in Action)</u> <u>Sally Hewitt</u> <u>An accessible information text perfectly pitched for KS1. This book answers questions about how the hearts and lungs work and what their function is in the human body. Complete with pictures, diagrams and suggestions for activities and investigations, this is a great book to support the human body science topic in KS1. You may also like the other books in the series, Your Bones (available here), Your Brain (available here) and Your Digestive System (available here).</u>
	<u>What's Eating You?</u> <u>Nicola Davies and Neal Layton</u> <u>All about the tiny creatures that live on or in human and animal bodies. Find out about the parasites that live in skin, hair, fur, feathers, blood, guts, livers, hearts and lungs. Filled with diagrams, cartoons and easy-to-read chunks of text, this information book is accessible and engaging.</u>
	<u>Oliver's Vegetables</u> <u>Vivian French and Alison Bartlett</u> <u>This popular picture book tells the story of fussy eater Oliver, who will not eat anything but chips. One day Grandpa sets him a challenge that helps him to learn to try new foods from the vegetable patch and Oliver is surprised by what he finds out</u>



Science Willow: Autumn

How could we cope without electricity for one day?

KS1 Uses of every day materials

- Distinguish between an object and the material 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.
- 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 squash, twisting, bending and stretching

Working Scientifically

- Comparing the uses of everyday materials in and around the school with materials found in other places
- Observing closely, identifying and classifying the uses of different materials and recording their observation

KS2 Year 4 Electricity

- **identify common appliances that run on electricity**
- **Construct a simple series electrical circuit, identifying and naming basic parts, including cells, wires, bulbs, switches and buzzes**
- **Identify whether or not a lamp or light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery**
- **Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit**
- **Recognise some common conductors and insulators and associate metals being good conductors**

Working Scientifically

- Observing patterns, sample, that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit

Prior Learning

- Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes. **(Early Learning Goal)**

Future Learning

- Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. **(Y6 - Electricity)**
- Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. **(Y6 - Electricity)**
- Use recognised symbols when representing a simple circuit in a diagram. **(Y6 - Electricity)**

WOW Moment:

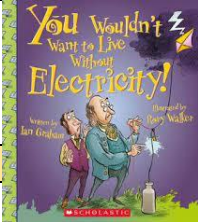
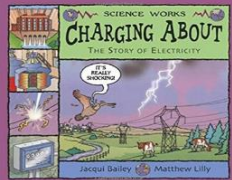
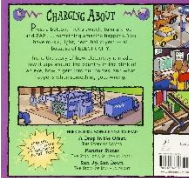
Children to spend a full day without access to electricity. This can be a very organised and liaised with home.

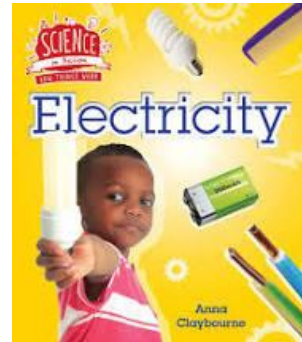
Literacy link write a letter to the parents explaining about spending a day with out electricity and asking for their support for all this to happen at home also. In addition, there are many opportunities for children to use exclamation text to support their work.

Key Vocabulary

Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol N.B. Children in Year 4 do not need to use standard symbols for electrical components, as this is taught in Year 6.

Learning Question 1	Why have we become so dependent on electricity?	• Can name the components in a circuit • Can make electric circuits • Construct a range of circuits. • Explore which materials can be used instead of wires to make a circuit. • Can communicate structures of circuits using drawings which show how the components are connected
Learning Question 2	How can you create an electrical circuit that has a switch or a buzzer?	• Can control a circuit using a switch • Explore how to connect a range of different switches and investigate how they function in different ways. • Choose switches to add to circuits to solve particular problems, such as a pressure switch for a burglar alarm. • Apply their knowledge of conductors and insulators to design and make different types of switch. • Can incorporate a switch into a circuit to turn it on and off • Can give reasons for choice of materials for making different parts of a switch • Can describe how their switch works
Learning Question 3	What are conductors and insulators and how are they associated with electricity?	• Can name some metals that are conductors • Can name materials that are insulators • Classify the materials that were suitable/not suitable for wires. • Use classification evidence to identify that metals are good conductors and non-metals are insulator • Can connect a range of different switches identifying the parts that are insulators and conductors
Learning Question 4	What! no TV or PlayStation! what shall we do?	Link; DT children to design and make a game which they could play as an alternative to an electrically powered game
Learning Question 5	Could you create a Meal that has not required electricity to prepare it?	DT food children to design, make and plan a meal which they will eat. The issue is that electricity must not have been required when preparing the meal.
Learning Question 6	How is electricity generated and what do you mean by alternative sources?	

Learning Question 7	Reflection; working as a team, can you put together a presentation which tells us about electricity?	• Make circuits that can be controlled as part of a DT project. - N.B. Children should be given one component at a time to add to circuits. • Can add a circuit with a switch to a DT project and can demonstrate how it works
By the end of this unit we are expecting children to know: • Identify and name appliances that require electricity to function • Construct a series circuit • Identify and name the components in a series circuit (including cells, wires, bulbs, switches and voices) • Predict and test whether a lamp or light within the circuit • Know the function of a switch • Know the difference between a conductor and an insulator; giving examples of each		Working Scientifically, by the end of the unit children will be stronger at: • Asking relevant questions and setting up a simple enquiry to explore a scientific question • Identify differences, similarities and changes related to an enquiry • Setting up a fair test and explain why it is fair • Using equipment, including beds • Use diagrams, keys, bar charts and tables; using scientific language • Drawing conclusions of suggesting improvements • Using observations and knowledge to answer scientific questions • Setting up a Test to compare two things • Making careful and accurate observations, including the use of standard units • Catherine, recording, classifying and presenting data in different ways to answer scientific question • Using findings to report the different ways, including oral and written exclamations, presentation • Making a prediction with
 Common Misconceptions		
	Children may think: • Electricity flows to bulbs, not through them • Electricity flows out of both ends of a battery • Electricity works by simply coming out of one end of a battery into the component.	
Key Learning Old devices and appliances run on electricity. Some plug in to the mains and others run on batteries. An electrical circuit consists of a cell or battery connected to a component using wires. If there is a break in the circuit, a loose connection or a short circuit, the component will not work. A switch can be added to the circuit to turn the component on and off. Metals are good conductors so they can be used as wires in a circuit. Non-metallic solids are insulators except for graphite (pencil lead). Water, if not completely pure, also conducts electricity.		
Links to texts		
	This series uses cartoon style illustrations and humorous narrative text to make key topics in Science and Geography both accessible and engaging. This approach encourages children to read about and understand complex ideas. This is the story of how electrical energy is generated in a power station, how it travels through pylons, power cables and wires until it reaches towns and homes. We learn how electrical current is created and how it is made safe. This book also contains an experiment, more great facts to know, useful websites and an index.	
		



Science Willow: Spring

What do rocks tell us about the way the Earth was formed?

KS1 Uses of every day materials

- Distinguish between an object and the material 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.
- Identify and compare the suitability of a variety of every day and materials including wood, metal, plastic, Glass, rock, Rick, paper and cardboard for particular uses
- Find out how the shapes of solid objects made from some materials can be changed by squash, twisting, bending and stretching

Working Scientifically

- Comparing the uses of everyday materials in and around the school with materials found in other places
- Observing closely, identifying and classifying the uses of different materials and recording their observations

KS2 Year 3 Rocks

- **Compare and groups together different kinds of rocks on the basis of their appearance and simple physical**
- **Describe in simple terms how fossils are formed when the things that have lived are trapped within a rock**
- **Recognise that soils are made from rocks and organic matter**

Working Scientifically

- Observe rocks, including those used in buildings and gravestones, and explore how and why they might have changed over time; using the hand Microscope to help them to identify and classify rocks according to whether they have grains or crystals, and whether they have fossils in them.
- Pupils my research and discuss the different kinds of living things he was fossils are found in sedimentary rock and explore how fossils are formed
- Peoples could explore different styles and identify similarities and differences between them and investigate what happens when rocks of robs to get there or what changes occur occur when they are in water. They can raise an answer questions about the way sales are formed.

Prior Learning

- Distinguish between an object and the material from which it is made. **(Y1 - Everyday materials)**
- Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. **(Y1 - Everyday materials)**
- Describe the simple physical properties of a variety of everyday materials. **(Y1 - Everyday materials)**
- Compare and group together a variety of everyday materials on the basis of their simple physical properties. **(Y1 - Everyday materials)**
- Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. **(Y2 - Uses of everyday materials)**

Future Learning

- Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. **(Y6 - Evolution and inheritance)**
- The composition of the Earth. **(KS3)**
- The structure of the Earth. **(KS3)**
- The rock cycle and the formation of igneous, sedimentary and ~~am~~metamorphic rocks. **(KS3)**

WOW Moment:

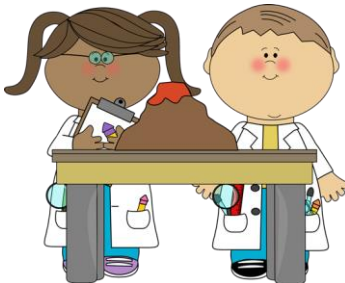
Bring in a collection of rocks and let the children touch and talk about them.

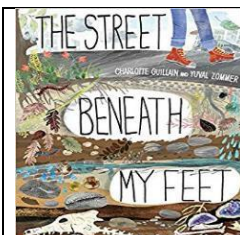
Using the book the street beneath my feet peoples will be able to explore what lies 1 m, 5 m, 10 m, and even deeper beneath their feet.

Key Vocabulary

Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil

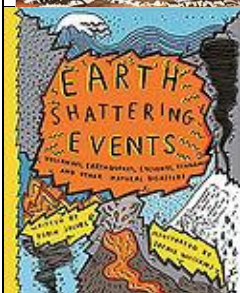
Learning Question 1	What can we learn by considering the soil that lies beneath our feet?	• Can name some types of rock and give physical features of each • Observe rocks closely. • Classify rocks in a range of ways, based on their appearance. • Devise a test to investigate the hardness of a range of rocks. • Devise a test to investigate how much water different rocks absorb. • Can devise tests to explore the properties of rocks and use data to rank the rocks • Can explain that soils are made from rocks and also contain living/dead matter • Observe soils closely. • Classify soils in a range of ways based on their appearance. • Devise a test to investigate the water retention of soils. • Observe how soil can be separated through sedimentation. • Can identify plant/animal matter and rocks in samples of soil • Can devise a test to explore the water retention of soil
Learning Question 2	What are fossils and why are they so fascinating?	• Can explain how a fossil is formed • Research using secondary sources how fossils are formed • Research the work of Mary Anning. • Can present in different ways their understanding of how fossils are formed e.g. in role play, comic strip, chronological report, stop-go animation etc.
Learning Question 3	What can you find out about sedimentary, metamorphic and igneous rocks?	• Can classify rocks in a range of different ways, using appropriate vocabulary • Observe how rocks change over time e.g. gravestones or old building. • Can link rocks changing over time with their properties e.g. soft rocks get worn away more easily
Learning Question 4	Why is a diamond a "girls best friend"?	
Learning Question 5	Can you collect some rocks to create a rock school chat	Link; Sculpture creating a rock sculpture.
Learning Question 6	Reflection Write a fictional story about a journey to the centre of the Earth and back again.	

By the end of this unit we are expecting children to know:	Working Scientifically, by the end of the unit children will be stronger at:
• Compare and great rocks based on their appearance and physical properties, giving a reason • No house oil is made and fossils are formed • Know about and explain the difference between sedimentary, metamorphic and igneous rock • Know about magna and the inner and outer core 	• Asking relevant scientific questions • Setting up a simple enquiry to explore a scientific question • Using equipment including thermometers and data loggers to make measurements • Setting up a fair test and explaining why it is for using diagrams keys bar charts and tables; using scientific language • During conclusions and suggest improvements • Identify differences, similarities and changes relating to an enquiry • Using observational and knowledge to answer scientific questions • Setting up a test to compare to things • Making careful and accurate observations, including the use of standard unit • Catherine, recording, classifying and presenting data in different ways to answer scientific questions • Using findings to report in different ways, including oral and written explanations, presentation • making a prediction with a reason for
Common Misconceptions	
Some children may think: ○ rocks are all hard in nature ○ rock-like, man-made substances such as concrete or brick are rocks ○ materials which have been polished or shaped for use, such as a granite worktop, are not rocks as they are no longer 'natural' ○ certain found artefacts, like old bits of pottery or coins, are fossils ○ a fossil is an actual piece of the extinct animal or plant ○ soil and compost are the same thing.	
Key Learning	
Rock is a naturally occurring material. There are different types of rock e.g. sandstone, limestone, slate etc. which have different properties. Rocks can be hard or soft. They have different sizes of grain or crystal. They may absorb water. Rocks can be different shapes and sizes (stones, pebbles, boulders). Soils are made up of pieces of ground down rock which may be mixed with plant and animal material (organic matter). The type of rock, size of rock pieces and the amount of organic matter affect the property of the soil. Some rocks contain fossils. Fossils were formed millions of years ago. When plants and animals died, they fell to the seabed. They became covered and squashed by other material. Over time the dissolving animal and plant matter is replaced by minerals from the water.	
Links to texts	



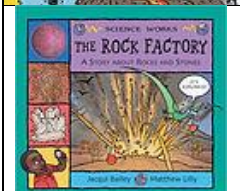
The Street Beneath My Feet
Charlotte Guillian & Yuval Zommer

I'd like to recommend this beauty. I recently used it to introduce Class 3's 'Under Our Feet' topic and there were gasps from the children. Sublimely illustrated, its concertina-style pages fold out into a long cross section of the Earth: in one side and out the other. It contains a wealth of information and opportunities for further questions from curious young minds. Just stunning. (Recommended by Louise Gall (@mrsgclass3), Year 3 teacher).



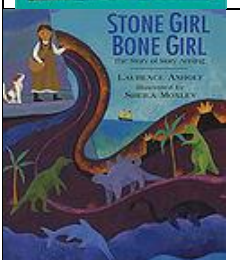
Earth Shattering Events
Sophie Williams & Robin Jacobs

Earth Shattering Events explores geological and meteorological disasters, with each page dedicated to a different natural event from volcanoes and tsunamis to cyclones and wildfires. Each event is explained in a way that is easy to understand for junior children without compromising on presenting the underlying scientific facts. A real strength of the book is how highly visual it is, with appealing diagrams, large illustrations, maps and charts contributing greatly to the readers' understanding of each topic. Also of high interest are the explanation boxes showing what to do if you get caught in the various disasters and the charts that show how each one is measured.



The Rock Factory: A Story About Rocks and Stones
Jacqui Bailey and Matthew Lilly

Part of a popular series called 'Science Works', this book uses simple but engaging cartoons to explain concepts about rock formation, including volcanoes and crystallization. The book includes experiments and links to websites for extra information.



Stone Girl Bone Girl
Laurence Anholt and Sheila Moxley

This book tells the true story of Mary Anning, who was made famous by discovering a fossilised sea monster when she was a little girl. This compelling story with its bright illustrations will engage your pupils and inspire them to become fossil hunters!

<https://www.booksfortopics.com/awesome-earth>

Science Willow: Summer

How can Usain Bolt run so fast?

KS1 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 amounts of different types of food, and hygiene.

KS1 Working Scientifically

- Using 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 are; and using their senses to compare different textures, sounds and smells.

KS2 Year 3 Animals inc Humans

- **Identify the animals, including humans comment need the right types and amount of nutrition, they cannot make their own food, they need nutrition for what they eat**
- **Identify what humans and some of the animals have skeletons and muscles for support, protection and movement**

KS2 Working Scientifically

- Identifying and grouping animals with and without skeletons and observing and comparing their movements; exploring ideas about what would happen if you meant to not have skeletons

Prior Learning

- Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. **(Y1 - Animals, including humans)**
- Identify and name a variety of common animals that are carnivores, herbivores and omnivores. **(Y1 - Animals, including humans)**
- Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). **(Y1 - Animals, including humans)**
- Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). **(Y2 - Animals, including humans)**
- Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. **(Y2 - Animals, including humans)**

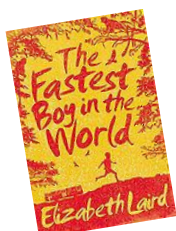
Future Learning

- Describe the simple functions of the basic parts of the digestive system in humans. **(Y4 - Animals, including humans)**
- Identify the different types of teeth in humans and their simple functions. **(Y4 - Animals, including humans)**
- Construct and interpret a variety of food chains, identifying producers, predators and prey. **(Y4 - Animals, including humans)**
- Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. **(Y6 - Animals, including humans)**



WOW Moment:

Check to see how far each child had run in the 9.68 seconds which is the world record for the hundred metres call with you so bowls full stop Numeracy children to time themselves running and then create graphs to make comparison with Usain Bolt time.
Literacy children to work with explanation text and explain how the food is transported by the blood of the various muscles in the body,



The Fastest Boy in the World

Elizabeth Laird

This is the story of a young Ethiopian boy called Solomon, who has a passion for running. He dreams of becoming a medal-winning athlete. Little does he know that soon he will need to run with all his might in a race to save his grandfather's life. This inspiring story was shortlisted for the prestigious Carnegie Medal.

Key Vocabulary

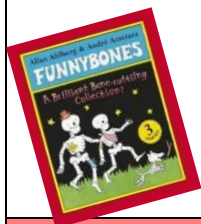
Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, move, skull, ribs, spine, muscles, joints

Learning Question 1	How long will it take you to run 100 m?	Investigate patterns asking questions such as: • Can people with longer legs run faster? • Can people with bigger hands catch a ball better? • Use their data to look for patterns (or lack of them) when answering their enquiry question
Learning Question 2	How does the arm joint work and can you make a similar joint?	• Can name some bones that make up their skeleton, giving examples that support, help them move or provide protection • Use secondary sources to research the parts and functions of the skeleton. • Compare, contrast and classify skeletons of different animals. • Can give similarities e.g. they all have joints to help the animal move, and differences between skeleton
Learning Question 3	What role does the muscle have in helping the arm to move?	• Can describe how muscles and joints help them to move
Learning Question 4	How does the food we ate get transported around our body?	Can name the nutrients found in food • Classify food in a range of ways. • Use food labels to explore the nutritional content of a range of food items. • Use secondary sources to find out the types of food that contain the different nutrients. • Can classify food into those that are high or low in particular nutrients • Can answer their questions about nutrients in food, based on their gathered evidence • Can state that to be healthy we need to eat the right types of food to give us the correct amount of these nutrients • Use food labels to answer enquiry questions e.g. How much fat do different types of pizza contain? How much sugar is in soft drinks? • Plan a daily diet to contain a good balance of nutrients. • Explore the nutrients contained in fast food. • Can talk about the nutrient content of their daily plan

Learning Question 5	Can you sketch the position that Usain Bolt is in from "on your marks to go"?	Link: Art create different sketches of the position of the body as it moves from crouched up right when running think a proportion. Think of Giacometti; Thomas Heatherwick (B of the bang)
Learning Question 6	How can you create a movement that links six different balances using your body?	Link: Create dance movements, from ballet to street dance which reflect the bodies ability to balance and move between different positions.
Learning Question 7	Reflection from photographs of your balance explain how the skeleton and muscles link to support you	Can describe how muscles and joints help them to move • Can give similarities e.g. they all have joints to help the animal move, and differences between skeleton

By the end of this unit we are expecting children to know:

- Know about the importance of a nutritious, balanced diet
- Know how nutrients, water and oxygen are transported within animals and humans
- Know about the skeletal and muscular system of humans



Working Scientifically, by the end of the unit children will be stronger at:

- Asking relevant scientific question
- Setting up a simple enquiry to explore a scientific question
- Setting up a further test and explaining why it is fair
- Using equipment including thermometers and data loggers to make measurements
- Using diagrams, keys, bar charts and tables, using scientific knowledge
- Drawing conclusions and suggest improvements
- Identify differences, similarities and changes related to an enquiry
- Using observations and knowledge to answer scientific questions
- Setting up a test to compare two things
- Making careful and accurate observations including the use of standard units
- Gathering, recording, classifying and presenting data in different ways to answer scientific questions
- Using findings to report different ways including oral address and exclamations, presentation
- Making a prediction with a reason

Common Misconceptions

Some children may think:

- certain whole food groups like fats are 'bad' for you
- certain specific foods, like cheese are also 'bad' for you
- diet and fruit drinks are 'good' for you
- snakes are similar to worms, so they must also be invertebrates
- invertebrates have no form of skeleton.

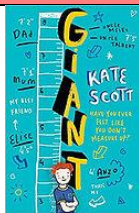


Key Learning

Animals, unlike plants which can make their own food, need to eat in order to get the nutrients they need. Food contains a range of different nutrients – carbohydrates (including sugars), protein, vitamins, minerals, fats, sugars, water – and fibre that are needed by the body to stay healthy. A piece of food will often provide a range of nutrients.

Humans, and some other animals, have skeletons and muscles which help them move and provide protection and support.

Links to texts



Giant, Kate Scott

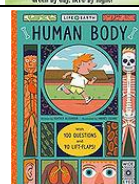
This is a thoroughly enjoyable read suitable for lower KS2. It tells the story of Anzo (whose name ironically means 'giant'), a boy who becomes increasingly concerned about how short he is compared to his family and friends. Through his desperate attempts to change his height, Anzo realizes that growing taller might not be the key to solving all of his problems. This is a compassionate story told with the right balance of humour and poignancy and one that is likely to strike a chord with readers who have experienced the tension between fitting in and feeling free to be themselves.



The Astounding Broccoli Boy

Frank Cottrell Boyce

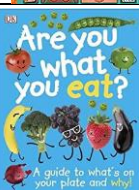
Entertaining and quirky, The Astounding Broccoli Boy tells the story of a boy called Rory who unexpectedly turns green. Stuck in a hospital isolation ward with the less-than-ideal companion of the school bully, who has also turned green, Rory must figure out what is happening to him and find a way to be a superhero no matter what he looks like on the outside. A very funny story that makes a good choice to read aloud in KS2.



Life on Earth: Human Body

Heather Alexander & Andres Lozano

This is a bright and colourful non-fiction text about the human body. The simple question-and-answer format makes it easy to gather lots of information and the interactive flaps keep young readers interested. This is the kind of non-fiction text that children like to choose to read and read again.



Are You What You Eat? explains why your body is an amazingly complex machine and what foods you should eat to fuel it.

If you've felt sleepy during school or wondered what a superfood is Are You What You Eat? explains which foods and food groups boost your energy and keep you healthy. Take the quizzes, read the facts and answer the questions to find out which foods keep your brain in top gear. Understand why healthy eating is so important and the positive impact it has on every aspect of your life. Packed with information on nutrition and healthy eating including vitamins, minerals and antioxidants, you'll be able to make good choices when you eat.



Book of Bones: 10 Record-Breaking Animals

Gabrielle Balkan & Sam Brewster

Each page presents a different skeleton and readers are given clues to try and guess which animal it belongs to. Engaging and informative, this text helps readers make links between the anatomy of different creatures and their behaviour.

<https://www.booksfortopics.com/healthy-humans>

Science Willow: Summer

Which wild animals and plants thrive in your local environment?

KS1 Living things and their habitats

- Explore and compare the 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

KS2 Year 4 living things and their habitats

- **Recognise that living things can be grouped in a variety of different ways**
- **Explore and use classification keys to help group, identify and name a variety of living things in the local and wider environment**
- **Recognise that environments can change and that this can sometimes pose dangers to living things.**

Working Scientifically

- Ask relevant questions and using different types of scientific enquiries to answer them
- Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions,
- Reporting on findings from enquiries, including oral and written exclamations, displays presentation of results and conclusions

Prior Learning

- Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. **(Y1 - Plants)**
- Identify and describe the basic structure of a variety of common flowering plants, including trees. **(Y1 - Plants)**
- Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. **(Y1 - Animals including humans)**
- Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). **(Y1 – Animals, including humans)**
- Identify and name a variety of plants and animals in their habitats, including microhabitats. **(Y2 - Living things and their habitats)**

Future Learning

- Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. **(Y5 - Living things and their habitats)**
- Describe the life process of reproduction in some plants and animals. **(Y5 - Living things and their habitats)**
- Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. **(Y6 - Living things and their habitats)**
- Give reasons for classifying plants and animals based on specific characteristics. **(Y6 - Living things and their habitats)**

WOW Moment:

Visit to a garden centre and local woodland

Key Vocabulary

Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate

Learning Question 1	Why do plants have stems/trunk, flowers/leaves and roots?	• Can identify plants that grew well in different conditions • Can explain the function of the parts of a flowering plant Observe what happens to plants over time when the leaves or roots are removed. • Investigate what happens to plants when they are put in different conditions e.g. in darkness, in the cold, deprived of air, different types of soil, different fertilisers, varying amount of space. • Can explain observations made during investigations
Learning Question 2	What is pollination and how is it importance to plants	• Can describe the life cycle of flowering plants, including pollination, seed formation, seed dispersal, and germination • Observe flowers carefully to identify the pollen. • Observe flowers being visited by pollinators e.g. bees and butterflies in the summer. Make close observations of seeds and bulbs. Classify seeds and bulbs • Can give different methods of pollination and seed dispersal, including example • Observe seeds being blown from the trees e.g. sycamore seeds. • Research different types of seed dispersal. • Classify seeds in a range of ways, including by how they are dispersed. • Create a new species of flowering plant • Can look at the features of seeds to decide on their method of dispersal • Can draw and label a diagram of their created flowering plant to show its parts, their role and the method of pollination and seed dispersal
Learning Question 3	How is water transported within plants?	• Observe the effect of putting cut white carnations or celery in coloured water.
Learning Question 4	Which wildflowers and trees will we find with in a kilometre of our school?	• Can find a range of items outside that are living, dead and never lived • Can name living things living in a range of habitats, giving the key features (make them suitable to the habitat and) helped to identify them • Spot flowers, seeds, berries and fruits outside throughout the year. • Observe plants and animals in different habitats throughout the year. • Can keep a careful record of living things found in different habitats throughout the year (diagrams, tally charts etc.)
Learning Question 5	How can we group the animals and plants that	• Compare and contrast the living things observed. • Create a simple identification key based on observable features.

	we find in different local environments?	• Can use classification keys to identify unknown plants and animals • Can talk about what the animals eat in a habitat and how the plants provide shelter for them • Can construct a food chain that starts with a plant and has the arrows pointing in the correct direction • Create simple food chains for a familiar local habitat from first-hand observation and Research
Learning Question 6	Which birds can we see out of our classroom window and how can we encourage more birds to visit our school?	• Use classification keys to name unknown living things. • Classify living things found in different habitats based on their features. • Can use classification keys to identify unknown plants and animals
Learning Question 7	How can we capture the beauty of a native birds for flowering plants in paint	• Observe animals and plants carefully, drawing and labelling diagrams. Art Link: there is an opportunity here for people to improve their close observation skills as well as experimenting with different painting and drawing techniques.
Learning Question 8	Which animals are currently in danger of being extinct?	• Can give examples of how an environment may change both naturally and due to human impact • Use fieldwork to explore human impact on the local environment e.g. litter, tree planting. • Use secondary sources to find out about how environments may naturally change • Use secondary sources to find out about human impact, both positive and negative, on environment
Learning Question 9	Reflection why should we be proud of our local environment	• Can present their learning about changes to the environment in different ways e.g. campaign video, persuasive letter
By the end of this unit we are expecting children to know:		Working Scientifically, by the end of the unit children will be stronger at:
• The function of different parts of flowering plants and tree • How water is transported with implants • The plant life-cycle, especially the importance of flowers • Know what different plants need to help them survive • He is classification keys to group, identify and name living things • How changes to an environment causing danger living things		• Asking relevant scientific questions • Setting up a simple enquiry to explore a scientific question • Setting up a fair test and explain why it is there • Using equipment, including thermometers and data loggers to make measurement • Use diagrams, keys, bar charts and tables, using scientific language • Drawing conclusions and suggesting improvements • Using Observations and knowledge to answer scientific questions • Identify differences, similarities and changes related to an enquiry • Making careful and accurate observations, including the use of standard units • Gathering, recording, classifying and presenting data in different ways to as a scientific question

- | | |
|--|--|
| <ul style="list-style-type: none"> • Create classification keys to group, identify and name living thing (for others to use) • Group living things in different ways | <ul style="list-style-type: none"> • Using findings to report in different ways, including oral and written exclamations, presentation • Making a prediction with a reason |
|--|--|

Common Misconceptions

Some children may think:

- the death of one of the parts of a food chain or web has no or limited consequences on the rest of the chain
- there is always plenty of food for wild animals
- animals are only land-living creatures
- animals and plants can adapt to their habitats, however they change
- all changes to habitats are negative.

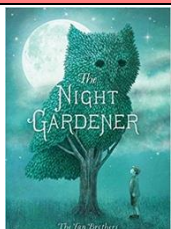


Key Learning

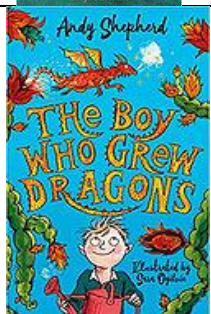
Living things can be grouped (classified) in different ways according to their features. Classification keys can be used to identify and name living things.

Living things live in a habitat which provides an environment to which they are suited (Year 2 learning). These environments may change naturally e.g. through flooding, fire, earthquakes etc. Humans also cause the environment to change. This can be in a good way (i.e. positive human impact, such as setting up nature reserves) or in a bad way (i.e. negative human impact, such as littering). These environments also change with the seasons; different living things can be found in a habitat at different times of the year.

Links to texts

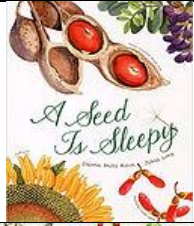


The provocative book the promise will help pupils to think of the immediate environment and ensure that they respect it. There are several opportunities for different types of writing dependent on how the theme is developed. In the book the night gardener there are opportunities for pupils to write a sequel, explaining what happens when the night Gardner does not return. One day, William discovers that the tree outside his window has been sculpted into a wise owl. In the following days, more topiaries appear, and each one is more beautiful than the last. Soon, William's gray little town is full of color and life. And though the mysterious night gardener disappears as suddenly as he appeared, William--and his town--are changed forever.



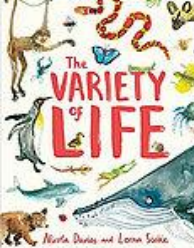
The Boy Who Grew Dragons **Andy Shepherd & Sara Ogilvie**

The first in a series of three stories from debut author Andy Shepherd, this hugely entertaining adventure about a small boy and his pet dragon would make a super read-aloud for years 2, 3 or 4. Tomas is busy in the garden with Grandad, planning which fruits to grow that might be turned into delicious jams or tarts. When Tomas stumbles across a strange tree with curious-looking fruit, he never expects that what might emerge from the fruit is a real live dragon! This is an adventure that is humorous at every turn, but also full of heart. Tomas is a great positive role model for showing how young people can apply curiosity and creativity to the process of growing and nurturing plants and see 'magic' in the course.



A Seed is Sleepy
Dianna Aston & Sylvia Long

This beautifully illustrated non-fiction text showcases how amazing seeds are. Each page shows how different types of seeds are perfectly adapted to survive, spread and grow into amazing plants. The text is poetic and the botanical illustrations are beautiful and detailed. If it never occurred to you to appreciate how amazing seeds can be, it will after reading this!



The Variety of Life
Nicola Davies & Lorna Scobie

This is a large and beautifully illustrated compendium celebrating the diversity of life on our planet. Each double page spread features a different type of animal, such as penguins or bears, and after an introductory paragraph presents a variety of different species with watercolour illustrations and interesting facts. This is an essential classroom book for the topic of animal variation.

<https://www.booksfortopics.com/animals-ks2>



Science Oak: Autumn

Why is our heart the most important pump that we own?

KS2 Year 6 living things and their habitats

- Identify and name the main parts of the human circulatory system, and describe the function of the heart, blood vessels and blood
- Recognise the impact of diet exercise, drugs and lifestyle on the way their bodies function
- Describe the ways in which nutrients and water are transported within animals, including humans

Working Scientifically

- Explore the words of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health
- Find more about the life at William Harvey
- Set up an investigation to find out about the impact of exercise on the body

Prior Learning	Future Learning
• Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Y2 - Animals, including humans) • Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. (Y3 - Animals, including humans) • Describe the simple functions of the basic parts of the digestive system in humans. (Y4 - Animals, including humans) • Identify the different types of teeth in humans and their simple functions. (Y4 - Animals, including humans)	• The consequences of imbalances in the diet, including obesity, starvation and deficiency diseases. (KS3) • The effects of recreational drugs (including substance misuse) on behaviour, health and life processes. (KS3) • The structure and functions of the gas exchange system in humans, including adaptations to function. (KS3) • The mechanism of breathing to move air in and out of the lungs. (KS3) • The impact of exercise, asthma and smoking on the human gas exchange system. (KS3)

WOW Moment:



Everyone will start by running around the school field and then observe what happens to their breathing.

Alternatively, it would be brilliant to start with a dissection of a pigs heart read the book Pig Heart Boy

Key Vocabulary

Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle

Learning Question 1	Why should having a defective heart be life threatening to Cameron?	• Can draw a diagram of the circulatory system and label the parts and annotate it to show what the parts do
----------------------------	---	--

Learning Question 2	What is the relationship between our pulse and exercise?	• Carry out a range of pulse rate investigations: ▪ fair test – effect of different activities on my pulse rate ▪ pattern seeking – exploring which groups of people may have higher or lower resting pulse rates ▪ observation over time - how long does it take my pulse rate to return to my resting pulse rate (recovery rate) ▪ pattern seeking – exploring recovery rate for different groups of people. • Can explain both the positive and negative effects of exercise, on the body
Learning Question 3	Could Dr Price be the modern William Harvey?	• Create a role play model for the circulatory system. • Use the role play model to explain the main parts of the circulatory system and their role
Learning Question 4	What happens to the oxygen we breathe and could we describe the arteries and capillaries as the body's motorway system?	• Produces a piece of writing that demonstrates the key knowledge e.g. explanation text, job description of the heart • Can use subject knowledge about the heart whilst writing conclusions for investigations
Learning Question 5	What is the difference between the drugs Cameron takes and the drugs we know that could potentially cause our bodies serious damage?	• Research the negative effects of drugs (e.g. tobacco) and the benefits of a healthy diet and regular exercise by asking an expert or using carefully selected secondary sources. • Can explain both the positive and negative effects of diet, exercise, drugs and lifestyle on the body
Learning Question 6	Reflection working in teams, in small groups, can you put together a presentation which shows the relationship between the heart, blood and breathing	• Produces a piece of writing that demonstrates the key knowledge e.g. explanation text, job description of the heart • Present information e.g. in a health leaflet describing impact of drugs and lifestyle on the body
By the end of this unit we are expecting children to know:		Working Scientifically, by the end of the unit children will be stronger at:
• Identify and name the main parts of the human circulatory system • Know the function of the heart, blood vessels and blood • Know the impact of diet, exercise, drugs and lifestyle and health		• Knowing how to plan different types of scientific enquiry • Using the outcome to test results to make predictions and set up a further comparative and fair test • Measuring accurately and precisely using a range of equipment knowing how to explain a conclusion from an enquiry • Knowing how to relate the outcomes from an enquiry to scientific knowledge in order to state whether evidence supports or refuse an argument or theory

Know the ways in which nutrients and water are transported in animals, including humans	- Knowing how to control variables in an enquiry - Knowing how to record data and results using scientific diagrams and labels, classification keys, tables, graphs, bar and line graphs - Reporting findings from enquiries in a range of ways - Explaining casual relationships in an enquiry - Reading, spelling and pronouncing scientific vocabulary accurately
---	--

Key Learning

The heart pumps blood in the blood vessels around to the lungs. Oxygen goes into the blood and carbon dioxide is removed. The blood goes back to the heart and is then pumped around the body. Nutrients, water and oxygen are transported in the blood to the muscles and other parts of the body where they are needed. As they are used, they produce carbon dioxide and other waste products. Carbon dioxide is carried by the blood back to the heart and then the cycle starts again as it is transported back to the lungs to be removed from the body. This is the human circulatory system.

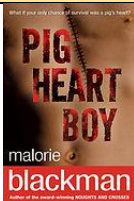
Diet, exercise, drugs and lifestyle have an impact on the way our bodies function. They can affect how well our heart and lungs work, how likely we are to suffer from conditions such as diabetes, how clearly we think, and generally how fit and well we feel. Some conditions are caused by deficiencies in our diet e.g. lack of vitamins. This content is also included in PSHE, please refer to the new statutory requirements for relationships and health education <https://www.gov.uk/government/publications/relationships-education-relationships-and-sex-education-rse-and-health-education/physical-health-and-mental-wellbeing-primary-and-secondary>

Common Misconceptions

Some children may think:

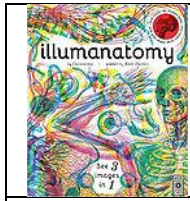
- your heart is on the left side of your chest
- the heart makes blood
- the blood travels in one loop from the heart to the lungs and around the body
- when we exercise, our heart beats faster to work the muscles more
- some blood in our bodies is blue and some blood is red
- we just eat food for energy
- all fat is bad for you
- all dairy is good for you
- protein is good for you, so you can eat as much as you want
- foods only contain fat if you can see it
- all drugs are bad for you.

Links to texts



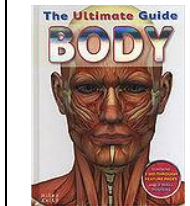
Pig Heart Boy **Malorie Blackman**

This powerful novel from the award-winning children's author Malorie Blackman tells the story of a young boy called Cameron who suffers from heart disease. The novel deals with the contemporary issue of animal organ transplants and is a gripping read from the first page. Suitable for upper KS2.



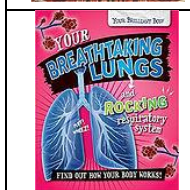
Illumanatomy
Ms. Kate Davies & Carnovsky

We love interactive non-fiction books and this is one that children can spend hours poring over. Use the different coloured lenses provided to see the different layers of the human body and reveal how the body's systems work together. Really fun but also hugely informative and well pitched for upper KS2, there is plenty to discover in this information text with a difference.



Body: The Ultimate Guide
Dr Kristina Routh

This book contains a detailed breakdown of what goes on inside the human body. Suitable for upper KS2, the text holds a wealth of information organised into accessible bullet points, clear photographs, pull-out wall posters and very detailed diagrams. The structure into key sections makes it easy to find information quickly and we particularly liked the acetate sheet overlays that display different layers over the top of each other. A useful support for learning about human biology in KS2.



Your Breathtaking Lungs and Rocking Respiratory System
Paul Mason

Part of the Your Brilliant Body series, this visually appealing information text looks at the fascinating science behind the process of breathing in and out. You may also like the other books in this recommended series too, such as Your Growling Guts and Dynamic Digestive System and Your Growing Body and Clever Reproductive System

Science Oak: Spring

Is there anybody out there?

KS2 Year 5 Earth and space

- Describe the movements of the Earth, and other planets, relative to the Sun in the solar system
- Describe the movement of the moon relative to the Earth
- Describe the Sun, Earth and moon as approximately spherical bodies
- Use the idea of the earths rotation to explain day and night and the apparent movement of the Sun across the sky

Working Scientifically

- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat recordings when appropriate
- Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- Reporting and presenting findings from enquiries, including conclusions, casual relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations

Prior learning	Future Learning
• Observe changes across the four seasons. (Y1 - Seasonal changes) • Observe and describe weather associated with the seasons and how day length varies. (Y1 - Seasonal changes)	• Gravity force, weight = mass x gravitational field strength (g), on Earth $g=10$ N/kg, different on other planets and stars; gravity forces between Earth and Moon, and between Earth and Sun (qualitative only). (KS3) • Our Sun as a star, other stars in our galaxy, other galaxies. (KS3) • The seasons and the Earth's tilt, day length at different times of year, in different hemispheres. (KS3) • The light year as a unit of astronomical distance. (KS3)

WOW Moment:



Visit from a mobile planetarium or set up a telescope. Explore apps such as 'Sky View'. Visit the space Museum.

The book cosmic provides people with many opportunities to be creative and brave. It links to their lives through the use of rides in funfairs, etc

Key Vocabulary

Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, solar system, rotates, star, orbit, planets

Learning Question 1

Could we describe the Earth and the Sun a space cousins and if the Earth

- Can show, using diagrams, the movement of the Earth and Moon
- Can explain the movement of the Earth and Moon

	and son are cousins, is the moon their young nephew?	• Use secondary sources to help create a model e.g. role play or using balls to show the movement of the Earth around the Sun and the Moon around the Earth. • Can use the model to explain how the Earth moves in relation to the Sun and the Moon moves in relation to the Earth
Learning Question 2	Can you explain why we have day and night?	• Can show using diagrams the rotation of the Earth and how this causes day and night • Can explain what causes day and night • Use secondary sources to help make a model to show why day and night occur. • Make first-hand observations of how shadows caused by the Sun change through the day. • Can demonstrate and explain verbally how day and night occur • Make a sundial. • Can explain how a sundial works • Research time zones. • Can explain verbally, using a model, why we have time zones • Can explain evidence gathered about the position of shadows in term of the movement of the Earth and show this using a model
Learning Question 3	What do we know about the other planets in our solar system?	• Consider the views of scientists in the past and evidence used to deduce shapes and movements of the Earth, Moon and planets before space travel. • Can describe the arguments and evidence used by scientists in the past
Learning Question 4	Who was Neil Armstrong and what would you ask him if you met him?	• Consider the views of scientists in the past and evidence used to deduce shapes and movements of the Earth, Moon • Can describe the arguments and evidence used by scientists in the past
Learning Question 5	How could you create a moon surface and create a moon buggy? 	DT Link: pupils will be creating a moon buggy that has certain specifications and then creating surface. Curiosity: The Story of a Mars Rover <u>by</u> Markus Motum This striking picture book explores the story of Curiosity, the robotic space rover sent by NASA to find out about life on Mars. The story is told from the point of view of the rover herself and is packed with information and stylised illustrations. Engaging and interesting, this picture book is a big hit in the classroom and offers a new perspective into the collection of narratives for children about space exploration.
Learning Question 6	Reflection could you create a simulated Moon landing and film it?	• Can create a voice over for a video clip or animation • Consider the views of scientists in the past and evidence used to deduce shapes and movements of the Earth, Moon and planets before space travel.
By the end of this unit we are expecting children to know:		Working Scientifically, by the end of the unit children will be stronger at:

- | | |
|--|--|
| <ul style="list-style-type: none"> • Know about and explain the movement of the Earth and other planets relative to the Sun • Know about and explain the movement of the moon relative to the air do you like no I demonstrate how night and they are created • Describe the Sun, Earth and Moon (using the term spherical) | <ul style="list-style-type: none"> • Knowing how to plan different types of scientific enquiry • Using the outcome of test results to make predictions and set up a further comparative and fair test • Measuring accurately and precisely using a range of equipment • Knowing how to explain a conclusion from an enquiry • Knowing how to relate the outcome from an enquiry to scientific knowledge in order to state whether evidence supports or if use an argument or theory • Know how to control variables in an enquiry • Knowing how to record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar graphs • Reporting findings from enquiries in a range of ways • Explaining casual relationships in an enquiry • Reading, spelling and pronouncing scientific vocabulary accurately |
|--|--|

Common Misconceptions

Some children may think:

- the Earth is flat
- the Sun is a planet
- the Sun rotates around the Earth
- the Sun moves across the sky during the day
- the Sun rises in the morning and sets in the evening
- the Moon appears only at night
- night is caused by the Moon getting in the way of the Sun or the Sun moving further away from the Earth.

Key Learning

The Sun is a star. It is at the centre of our solar system. There are 8 planets (can choose to name them, but not essential). These travel around the Sun in fixed orbits. Earth takes 365¼ days to complete its orbit around the Sun. The Earth rotates (spins) on its axis every 24 hours. As Earth rotates half faces the Sun (day) and half is facing away from the Sun (night). As the Earth rotates, the Sun appears to move across the sky. The Moon orbits the Earth. It takes about 28 days to complete its orbit. The Sun, Earth and Moon are approximately spherical.

Links to texts



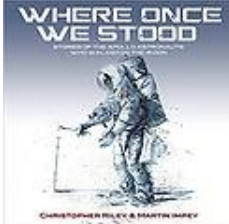
Cosmic

Frank Cottrell Boyce and Steven Lenton

A popular choice for upper KS2 from the award-winning author Frank Cottrell Boyce. This novel tells the story of Liam, an incredibly tall twelve-year-old who attempts to pass as an adult in order to accompany his friend Florida on a trip to space that she won in a competition. It has been likened to Charlie and the Chocolate Factory in a space setting, and contains discussion questions and bonus material for use in class.

Where Once We Stood

Christopher Riley & v Martin Impey



Where Once We Stood is a stunning book - large, weighty and dense with information, vocabulary, ideas and meaning. Capturing first-hand accounts from the 12 people who have stood on the moon, in their own words, each chapter covers a particular Apollo mission and begins with dates, crew logs and maps to set the scene. The language throughout is a glorious blend of the poetic and the scientific, the prosaic and the profound. The illustrations by Martin Impey are breath-taking and alone make the book worth purchasing. Where Once We Stood rewards detailed and repeated study and would be an excellent key text around which to build a Space Scheme of Work for Year 5/6.

The International Space Station

Clive Gifford and Dan Schlitzkus



Did you know that astronauts can grow up to 5-6cm taller in space because of the lack of gravity compressing their spines? Or that astronauts on the International Space Station often add chilli sauce to their space meals because their sense of taste is altered in space? Or that sometimes space-walking astronauts wear an adult nappy underneath their spacesuit? Nor did we, until we read this absorbing information text about the International Space Station! We highly recommend this book, which is packed with fascinating fact boxes, diagrams, engaging illustrations and a comprehensive glossary, and we can see it becoming a key information text for primary classrooms covering the topic of Earth & Space.



Hidden Figures: The True Story of Four Black Women and the Space Race

Simon Bartram

The story of four figures who contributed to some major milestones in the American Space Race: Dorothy Vaughan, Mary Jackson, Katherine Johnson and Christine Darden. Each woman overcame huge obstacles during a time when being black and female imposed major limitations on what people were allowed to do. This is a beautifully illustrated account of inspiring real life stories.



Find more text at <https://www.booksfortopics.com/space-ks2>

Science Oak: Summer

Have we always looked like this?

KS2 Year 6 Evolution and in heritage

- Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago
- Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents
- Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution

Working Scientifically

- Upstairs and raise questions about local animals and how they are adapted to their environment
- Compare house l'm living things are adapted to survive in extreme conditions, for example practices, penguins and camels. They might analyse the advantages and disadvantages of specific adaptations, such as being on two feet rather than four, having a long or a short break, having gills or lungs, tendrils on climbing plants, brightly coloured and scented flowers

Prior Learning

- 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. **(Y2 - Living things and their habitats)**
- Notice that animals, including humans, have offspring which grow into adults. **(Y2 - Animals, including humans)**
- Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. **(Y3 - Plants)**
- Describe in simple terms how fossils are formed when things that have lived are trapped within rock. **(Y3 - Rocks)**
- Recognise that environments can change and that this can sometimes pose dangers to living things. **(Y4 - Living things and their habitats)**
- Describe the life process of reproduction in some plants and animals. **(Living things and their habitats - Y5)**

Future Learning

- Heredity as the process by which genetic information is transmitted from one generation to the next. **(KS3)**
- A simple model of chromosomes, genes and DNA in heredity, including the part played by Watson, Crick, Wilkins and Franklin in the development of the DNA model. **(KS3)**
- The variation between species and between individuals of the same species means some organisms compete more successfully, which can drive natural selection. **(KS3)**
- Changes in the environment may leave individuals within a species, and some entire species, less well adapted to compete successfully and reproduce, which in turn may lead to extinction. **(KS3)**

WOW Moment:



Watch an extract of the planet of the apes and consider how realistic it could be.

Use the powerful book 'Wonder' to support this unit of work.

Key Vocabulary

Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils

Learning Question 1	What do you mean by evolution and inheritance?	• Can explain the process of evolution • Identify features in animals and plants that are passed on to offspring and explore this process by considering the artificial breeding of animals or plants e.g. dogs. • Can link the patterns seen in the model to real examples
Learning Question 2	Who was Charles Darwin and why is he still a controversial figure?	• Can give examples of how an animal or plant has evolved over time e.g. penguin, peppered moth • Use models to demonstrate evolution e.g. 'Darwin's finches' bird beak activity. • Use secondary sources to find out about how the population of peppered moths changed during the industrial revolution. • Compare the ideas of Charles Darwin and Alfred Wallace on evolution. • Can explain why the dominant colour of the peppered moth changed over a very short period of time
Learning Question 3	Could we possibly have evolved from apes, monkeys or other primates?	• Can give examples of fossil evidence that can be used to support the theory of evolution • Make observations of fossils to identify living things that lived on Earth millions of years ago. • Research the work of Mary Anning and how this provided evidence of evolution • Can link the patterns seen in the model to real examples
Learning Question 4	Why do you not usually look exactly like your mum or dad?	Art Link: Children to sketch themselves and use photographs to sketch an older member of their family. This will require detailed observation and accurate sketching.
Learning Question 5	Can you find out how animals to: live in the cold, around the equator, under the ground: and, in trees: are specifically adapted to live and survive there?	• Can give examples of how plants and animals are suited to an environment • Design a new plant or animal to live in a particular habitat. • Can identify characteristics that will make a plant or animal suited or not suited to a particular habitat
Learning Question 6	Reflection carry out individual research about the way humans have adapted over the years that requires you to start with a range of questions	• Give examples of living things that lived millions of years ago and the fossil evidence we have to support this • Identify features in animals and plants that are passed on to offspring and explore this process by considering the artificial breeding of animals or plants e.g. dogs. • Can link the patterns seen in the model to real examples
By the end of this unit we are expecting children to know:		Working Scientifically, by the end of the unit children will be stronger at:
• Know how the Earth and living things have changed over time		• Knowing how to plan different types of scientific enquiry • Use the outcome of test results to make predictions and set up a further comparative affect

- | | |
|---|---|
| <ul style="list-style-type: none"> • Know how fossils can be used to find out about the past • Know about reproduction and offspring (recognising that offspring normally varied and are not identical to the parent) • Know how animals and plants are adapted to suit their environment • Link adaptation overtime for evolution • Know about evolution and can explain what it is | <ul style="list-style-type: none"> • Measuring accurately and precisely using a range of equipment • Knowing how to explain a conclusion from an enquiry • Knowing how to be late the outcome of an enquiry to scientific knowledge in order to state whether evidence supports or refute an argument or theory • Know how to control variables in an enquiry • Knowing how to record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • Reporting findings from enquiries in a range of ways • Explaining cash for relationships in an enquiry • reading, spelling and pronouncing scientific vocabulary accurately |
|---|---|

Common Misconceptions

Some children may think:

- adaptation occurs during an animal's lifetime: giraffes' necks stretch during their lifetime to reach higher leaves and animals living in cold environments grow thick fur during their life
- offspring most resemble their parents of the same sex, so that sons look like fathers
- all characteristics, including those that are due to actions during the parent's life such as dyed hair or footballing skills, can be inherited
- cavemen and dinosaurs were alive at the same time.

Key Learning

All living things have offspring of the same kind, as features in the offspring are inherited from the parents. Due to sexual reproduction, the offspring are not identical to their parents and vary from each other.

Plants and animals have characteristics that make them suited (adapted) to their environment. If the environment changes rapidly, some variations of a species may not suit the new environment and will die. If the environment changes slowly, animals and plants with variations that are best suited survive in greater numbers to reproduce and pass their characteristics on to their young. Over time, these inherited characteristics become more dominant within the population. Over a very long period of time, these characteristics may be so different to how they were originally that a new species is created. This is evolution.

Fossils give us evidence of what lived on the Earth millions of year ago and provide evidence to support the theory of evolution. More recently, scientists such as Darwin and Wallace observed how living things adapt to different environments to become distinct varieties with their own characteristics.

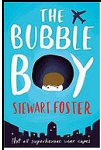
Links to texts



Wonder by

R J Palacio

A hugely popular and thought-provoking novel, suitable for upper KS2. It tells the story of Auggie, a ten-year-old boy who was born with a highly unusual deformity of his face and his search for acceptance in a world that judges on appearances.



The Bubble Boy by Stewart Foster

This is a gripping and moving story that is popular with upper KS2. Joe is an eleven-year-old boy who lives his life stuck in a hospital room. Joe has a medical condition that means he is not allowed leave the hospital or encounter germs from the outside world. Can the characters Joe meets bring hope and warmth into his hospital bubble? An award-winning story that is great for developing empathy with different viewpoints and experiences.