

SCIENCE POLICY

June 2021-2023

Potter Street Academy
Part of the Passmores Co-operative Learning Community

Potter Street Academy Science Policy.

“Equipped with his five senses, man explores the universe around him and calls the adventure Science.”

Edwin Hubble Astronomer (1889 – 1953)

Introduction:

Science has changed our lives and is vital to the world’s future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science.

Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

Main Aims:

At Potter Street we aim to:

- Stimulate and excite children’s curiosity about changes and events in the world
- Develop an enquiring mind and a positive attitude towards finding answers
- Help children develop the skills necessary to work in a safe, scientific way.
- Engage pupils as learners, linking ideas with practical experience
- Help children develop an understanding of why science is important and how it can affect their everyday life
- Show pupils how major scientific ideas contribute to technological change and how this impacts on improving the quality of our everyday lives
- Help pupils to learn to question and discuss scientific issues that may affect their own lives
- Develop children’s awareness of the links, applications and benefits of Computing in their work.
- Encourage the children to become caring people who respect living things and their environment.
- Promote curiosity, imagination, co-operation, perseverance, open mindedness and responsibility.

Safe practice.

Safe practice must be promoted at all times. Teachers must also take into account all relevant Health and Safety issues (see Health and Safety Policy) Particular attention must be given to avoiding the use of anything that aggravates individual pupils’ allergies.

Organisation

In the Early Years Foundation Stage Science is explored through Understanding of the world and there is continuous provision of resources to encourage exploration complemented by skilful questioning and interaction from adults within the setting.

From Years 1 to 6 The National Curriculum programme of study is organised into half-termly units. The long-term planning in each year group is set out in the table below.

	<u>1a</u>	<u>1b</u>	<u>2a</u>	<u>2b</u>	<u>3a</u>	<u>3b</u>
<u>Year 1</u>	Animals and humans Seasonal change autumn	Everyday Materials Seasonal change Winter	Animals and humans	Everyday Materials Seasonal change Spring	Plants	Plants Seasonal change Summer
<u>Year 2</u>	Animals and humans	Living things and habitats	Uses of Everyday Materials	Uses of Everyday Materials	Plants	Animals and Humans
<u>Year 3</u>	Materials Rocks and soil	Forces Magnets	Animals and humans	Plants	Light and Dark	Investigative Skills
<u>Year 4</u>	Animals and humans	Materials States of Matter	Electricity	Habitats	Sound	Investigative Skills
<u>Year 5</u>	Forces	Materials Changes of states	Earth and Space	Earth and Space	Living things and habitats	Living things and habitats
<u>Year 6</u>	Evolution and inheritance	Light Electricity	Living things and habitats	Animals and humans	Revision	Electricity

We believe that in order to ensure our children can build on prior experiences we must ensure that their knowledge and skills are embedded. To achieve this, we have developed a Continuous provision Map for Science which promotes constant revisiting of previous learning. Scientists call this Spacing. Spacing works because, after a gap, pupils have to work harder to retrieve knowledge from memory. This effort means they are more likely to remember the information over the long-term.

Please see appendix 1 for our Continuous Provision Map for Potter Street which shows how children's knowledge is develop and revisited across the school.

Progression

To ensure that children make good progress through the foundation stage to the appropriate level of attainment at the end of key stage 2 all teachers will:

- plan together in year groups with the Subject Leader over-seeing to ensure that we plan with a progression in skills and knowledge across the year groups,
- monitor and update progress in the agreed tracking grids using the key learning from medium-term plans.
- make links in the children's learning and exploit cross-curricular links where possible
- provide interesting and stimulating opportunities and activities for all children.

Please see appendix 2 showing the progression in working scientifically for Potter Street.

Subject Leader

The role of the Subject leader in progression is to:

- monitor planning for each year group to ensure no overlaps occur and skills are developed
- observe that strategies for quality teaching are being used
- to scrutinise regularly assessment data and children's work
- Report to SLT and LGB regularly on pupil progress in science.

Assessment

Foundation Stage teachers will assess half-termly using observation of children in adult and child-led activities. This information will be incorporated as evidence within the Tapestry programme for Foundation Stage referencing Development Matters as part of the child's Understanding of the World assessment.

At Key stage 1 and 2 all teachers should use their professional judgements of a child's classroom work and throughout the course of a unit children should complete two to three assessments based on the previous lessons for the unit being taught. These assessments will be based on the learning outcomes for the unit. The assessment must also include open ended questions to allow assessment for greater depth.

Equal Opportunities:

The teaching of Science in our school takes consideration of our equal opportunities policy and inclusion. We recognise children as individuals and base our teaching upon our knowledge of their specific needs. A range of teaching methods and resources allow children with a wide range of abilities to achieve their full potential. The use of multi-cultural resources is encouraged and teachers are aware of gender issues surrounding Science. (See Equality and SEND Policy)

Key Skills and Cross-curricular links.

Science pervades every aspect of our lives and we will relate it to all areas of the curriculum including supporting the teaching and development of key skills within Speaking and Listening, reading, writing and mathematics.

Resources

Learning resources are kept in the school resource area. Older pupils may be taught how to locate and replace resources properly. The subject leader uses their annual budget to ensure resources are available to teach the curriculum.

Extra-curricular opportunities:

From time to time teachers plan to undertake fieldwork, visits to places of scientific interest and invite visitors to the school in order to support the learning objectives for units of work where relevant.

Policy Review

This policy will be reviewed every two years in line with the school's policy review programme. The Head teacher is responsible for reporting to the Governors' about the quality of its implementation and its impact on standards. In the light of this, policy amendments may be made.

Emma Bloomfield, Potter Street Academy

Review Date: June 2023

Appendix 1 Continuous Provision and Knowledge Progression

	<u>Science Topics (Explicit)</u>	<u>Continuous Provision</u>	<u>Continuous Provision Ideas/Questions to explore.</u>
EYFS	<p><u>Understanding the world.</u></p> <p>The world: children know about similarities and differences in relation to places, objects, materials and living things.</p> <p>They talk about the features of their own immediate environment and how environments might vary from one another.</p> <p>They make observations of animals and plants and explain why some things occur, and talk about changes.</p>	<p>Life processes and living things Bug hotel, mini-beast box, weather boxes (rain, sun, snow, wind), caring for plants and vegetables throughout the year</p> <p>Materials Mud kitchen, playdough, selection of materials available to explore and use during play, access to natural materials - sticks, stones, pine cones, flowers, sand, bark, leaves, etc.</p> <p>Physical processes Water wall, water tray, selection of various containers, mud kitchen, magnets, bikes/scooters, ball run, torches, large and small block play resources</p> <p>Investigation Non-fiction books, access to iPads for research, freedom to explore environment using senses, ask questions and develop own experiments, variety of resources to support investigations such as mirrors, measuring equipment, timers, binoculars, various containers, magnifying glasses, clipboards, paper, pencils, etc. Class adults to discuss ideas and concepts with.</p> <p>Adult initiated/led activities Regular cooking opportunities, regular planting activities, regular opportunities to explore various sensory materials such as gloop, slime, etc., daily weather talk, living eggs annually, adult-led experiments (Stem activity cards or teacher chosen/child inspired)</p> <p>Early Years Science Experiment Ideas:</p> <ol style="list-style-type: none"> 1. Sink or float? Get a large container, fill it with water and with the children collect a range of objects from around the learning environment. The children then take it in turns to drop an object into the water - after predicting whether it will sink or float. 2. Will it dissolve? This activity teaches children about solubility, specifically whether a given substance will dissolve in water. You'll need several small, transparent water containers (e.g. plastic or glass cups) and a range of substances to test (e.g. sugar, oil, salt, food colouring, rice, flour, vitamin tablets). Before dropping each substance into a cup ask the children to predict whether it will dissolve or not. 3. Magnet maze. For this activity, you'll need some paper plates, pens/crayons and magnets. Give a paper plate to each child and ask them to draw a 'maze' or a wiggly line on it. Use a pair of magnets to navigate along the line - the one below the plate moves the one on top. 4. Discovering magnification. You'll need a tray (or shallow box/crate), a selection of objects with interesting details and/or textures, and a few magnifying glasses. To extend this activity you could ask the children to draw some of the details/patterns that they find. 5. Homemade marble runs. For this activity you'll need some tape and a collection of things like cardboard tubes, plastic bottles and egg cartons. Use these materials to assemble a marble run together, exploring principles such as the effect of gradient on speed. 6. Weather station. a) Make wind chimes (e.g. out of plastic bottles or beads) and hang them up outside; b) Make a wind sock (e.g. out of strips of waterproof material taped around a plastic ring) to work out the direction of the wind; c) Make a rainwater collector (e.g. out of a plastic bottle with the top cut off) to measure rainfall 7. How do plants grow? Cress is the classic quick-growing plant (and lends itself to creative uses, e.g. as hair for a monster), or try sunflowers (good for measuring growth against a wall) or pumpkins (to tie in with seasonal activities). 8. Crazy cornflour slime. Explore the strange properties of this cross between a liquid and a solid. For best results use a large shallow container that you can put on the floor, like a sand/water tray. Mix together cornflour and water until you have a slime consistency. Try punching the slime - it instantly turns solid. Roll some slime into a ball in your hand and then stop - it turns back into a liquid. 9. Magic dancing milk. An engaging introduction to chemical reactions - you'll need a shallow dish, full-fat milk, food colouring, cotton buds and washing up liquid. Pour some milk into the dish, add some drops of food colouring, then dab with a cotton bud dipped in washing up liquid. Use a few different colours at the same time for maximum impact, and try dabbing in different places. 10. Colourful capillary action. Show how water moves up through plants using food colouring. This activity works particularly well (and quickly) with celery, but you could also use white-petal flowers. Put some celery sticks (preferably with leafy tops) in separate glasses of water, then add different colours to each glass. Within an hour or two the celery will change colour as the dye moves up through capillary action. 	

Y1

Plants

Identify and name a variety of common wild and garden plants including deciduous and evergreen trees.

Identify and describe the basic structure of a variety of common flowering plants including trees.

Animals Including humans

identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals

identify and name a variety of common animals that are carnivores, herbivores and omnivores

describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets)

identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense

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

Seasonal changes

observe changes across the 4 seasons

observe and describe weather associated with the seasons and how day length varies

Understanding the world (from the EYFS curriculum)

The world: 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.

Seasonal Changes

Should occur in each year group through the geography continuous provision.

Use **Explorify** to explore images as a starting point for discussion with Y1 children to ensure coverage of EYFS thinking.

Continuation of play experiences for children to investigate key EYFS learning as necessary.

For more practical investigations see

www.stem.org.uk/resources/community/resource/258613/early-yearsreception-science-homeworks



Minibeast Movement!

Can you move like a minibeast? Practise:

- Scuttling like a spider
- Slithering like a snail
- Hopping like a cricket
- Creeping like a caterpillar
- Fluttering like a butterfly
- Buzzing like a bumblebee



Can you think of anymore? If you're not sure how these minibeasts move you could look for some videos on YouTube.

After you have practised, play 'Guess the Minibeast' with your family - everyone takes it in turns to do an impression of a minibeast, while the others try to guess what you are. If your minibeast makes noises, you could do this as well as moving like them.



<p>Y2</p>	<p><u>Plants</u> 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.</p>	<p><u>Plants (from Year 1)</u> Identify and name a variety of common wild and garden plants including deciduous and evergreen trees. Identify and describe the basic structure of a variety of common flowering plants including trees.</p>	<p><u>Quizzes about Plants (from Year 1) to include the following information:</u> <u>Types of Plants</u> Some plants drop their leaves every year what are they called? Some plants keep their leaves all year; what are they called? Activities to name common wild and garden plants https://www.stem.org.uk/system/files/elibrary-resources/legacy_files_migrated/30163-The-Great-Plant-Hunt-Identikit.pdf Naming parts of a plant http://www.crickweb.co.uk/ks1science.html</p>
<p>Y2</p>	<p><u>Animals Including humans</u> 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.</p>	<p><u>Animals Including humans (from Year 1)</u> Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Identify and name a variety of common animals that are carnivores, herbivores and omnivores. Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</p>	<p><u>Quizzes about Animals including humans (from Year 1) to include the following information:</u> Follow the link below for a revision of what an animal needs to have to belong to the mammals, fish, birds, amphibians, reptiles. https://www.sheppardsoftware.com/content/animals/kidscorner/games/animalclassgame.htm Interactive game and video to revise Invertebrates and Vertebrates https://www.bbc.co.uk/bitesize/topics/zn22pv4/articles/z8mbqhv What type of food do animals eat? To revise herbivores, carnivores and omnivores: https://www.bbc.co.uk/bitesize/topics/z6882hv/articles/z96vb9q Revision: What are our senses and body parts? https://www.bbc.co.uk/bitesize/topics/z9yycdm/articles/zxy987h</p>
<p>Y2</p>	<p><u>Materials</u> Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Find out how the shapes of</p>	<p><u>Materials (from year 1)</u> 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</p>	<p><u>Quizzes about Materials (from Year 1) to include the following information:</u> Can you name a range of materials? Can you guess the materials from a description of its properties? Look at a picture of a group of materials which is the odd one out and why? Use: https://explorify.wellcome.ac.uk/ to support</p>

	<p>solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>	<p>everyday materials on the basis of their simple physical properties.</p>	
<p><u>Y2</u></p>	<p><u>Living Things and Habitats</u> 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 microhabitats. 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.</p>	<p><u>Introduced within Year 2</u></p>	

<p>Y3</p>	<p><u>Plants</u> Identify and describe the functions of different parts of plants, roots, stem/trunk, leaves and flowers. Explore the requirements of plants for life and growth and how they vary from plant to plant.</p>	<p><u>Plants (from Year 1)</u> Identify and name a variety of common wild and garden plants including deciduous and evergreen trees. Identify and describe the basic structure of a variety of common flowering plants including trees.</p> <p><u>Plants (from Year 2)</u> 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.</p>	<p><u>Quizzes about Plants (from Year 1 and year 2) to include the following information:</u></p> <p><u>Year 1</u> <u>Types of Plants</u> Some plants drop their leaves every year what are they called? Some plants keep their leaves all year; what are they called? Activities to name common wild and garden plants https://www.stem.org.uk/system/files/elibrary-resources/legacy_files_migrated/30163-The-Great-Plant-Hunt-Identikit.pdf Naming parts of a plant http://www.crickweb.co.uk/ks1science.html</p> <p><u>Year 2</u> <u>Growing Plants</u> Plants need light, water, soil and warmth to grow. Plants use light to make their own food. □ Plants have seeds, roots, stems and leaves. What happens when you grow cress seeds on cotton wool? Discussion: What happens to a bean in a see through pot? What happens when seeds are left in the dark or without water.</p> <p>Use experiments in time lapse video to recap upon how plants germinate and grow. www.stem.org.uk/resources/community/collection/13299/year-2-plants</p>
<p>Y3</p>	<p><u>Animals Including humans</u> 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 identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p>	<p><u>Animals Including humans (from Year 1)</u> Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Identify and name a variety of common animals that are carnivores, herbivores and omnivores. Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</p> <p><u>Animals Including humans (from Year 2)</u> 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)</p>	<p><u>Quizzes about Animals including humans (from Year 1 and 2) to include the following information:</u></p> <p><u>Year1</u> Follow the link below for a revision of what an animal needs to have to belong to the mammals, fish, birds, amphibians, reptiles. https://www.sheppardsoftware.com/content/animals/kidscorner/games/animalclassgame.htm</p> <p>Interactive game and video to revise Invertebrates and Vertebrates https://www.bbc.co.uk/bitesize/topics/zn22pv4/articles/z8mbqhv</p> <p>What type of food do animals eat? To revise herbivores, carnivores and omnivores: https://www.bbc.co.uk/bitesize/topics/z6882hv/articles/z96vb9q</p> <p>Revision: What are our senses and body parts? https://www.bbc.co.uk/bitesize/topics/z9yycdm/articles/zxy987h</p> <p><u>Year 2</u> <u>Animal Babies</u> Animal babies are often very much like their parents (but not all are similar at birth). Can you think of examples of both? Animals including humans need to be fed and cared for by their parents. Can you discuss the similarities and differences of animal and human needs? Questions using flash cards to match adult animals to their offspring. Recap on names of animal babies. Questions about how animals look after their young at http://www.crickweb.co.uk/ks1science.html Looking after pets - Pets need food, water, a place to live and move, medicine when they are ill and love. Why are some animals not suitable to keep as pets?</p>

		Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	Can you order cards to show human and animal development? Can you sequence cards showing the basic needs of animals, including humans, for survival - water, food and air. Can you describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene etc?
Y3	<p><u>Materials: Rocks and Soils</u> Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Describe in simple terms how fossils are formed when things that have lived are trapped within rock. Recognise that soils are made from rocks and organic matter.</p>	<p><u>Materials (from year 1)</u> 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</p> <p><u>Materials (from year 2)</u> Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</p>	<p><u>Quizzes about Materials (from Year 1 and 2) to include the following information:</u></p> <p><u>Year 1</u> Can you name a range of materials? Can you guess the materials from a description of its properties? Look at a picture of a group of materials which is the odd one out and why? Use: https://explorify.wellcome.ac.uk/ to support</p> <p><u>Year 2</u> Discuss how materials properties allow them to be used for different applications. Explore collections of materials and organise in Carroll diagrams with scientific vocabulary matching such as: squashing, bending, twisting and stretching</p>
Y3	Not taught explicitly in Year 3	<p><u>Living Things and Habitats (from year 2)</u> 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 microhabitats</p>	<p><u>Quizzes about Living Things and Habitats (from Year 2) to include the following information:</u></p> <p><u>Year 2</u> Using images from Explorify can you sort into groups living, dead, never been alive? Up level difficulty of image eg) a wooden chair. Can you match the image of the creature to the habitat? Look at images of creatures and discuss how they have to adapt to live in an ever evolving habitat? Can you describe what a micro-habitat is and give examples? Can you fill in the gaps within a food chain? Food chain quizzes: https://www.twinkl.co.uk/resource/t2-s-319-science-food-chains-powerpoint-quiz</p>

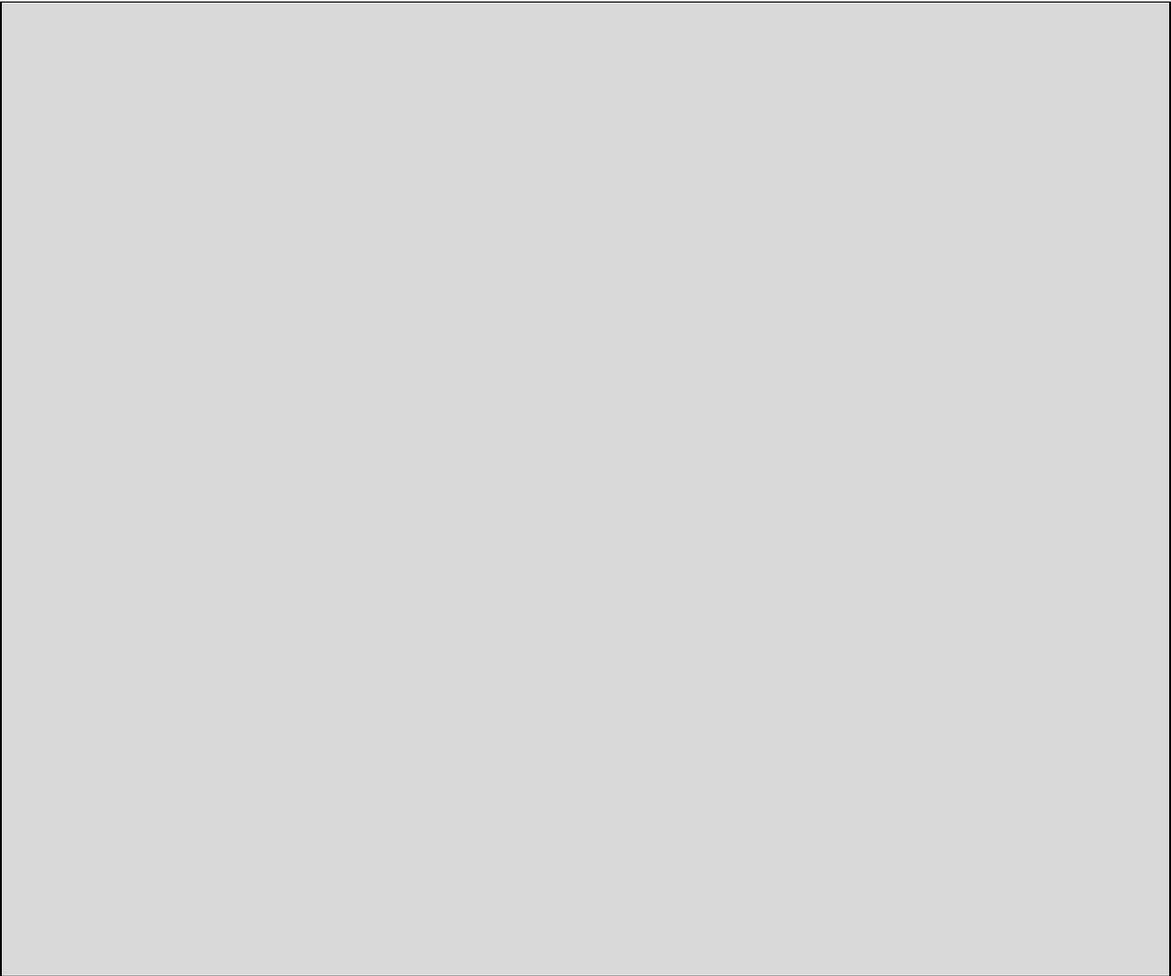
		Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.	
Y3	Light Recognise that they need light in order to see things and that dark is the absence of light. Notice that light is reflected from surfaces. Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. Recognise that shadows are formed when the light from a light source is blocked by an opaque object. Find patterns in the way that the size of shadows change.	Introduced explicitly in Year 3	

Y3

Forces

Compare how things move on different surfaces.
Notice that some forces need contact between 2 objects but magnetic forces can act at a distance.
Observe how magnets attract or repel each other and attract some materials and not others.
Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet and identify some magnetic materials.
Describe magnets as having 2 poles.
Predict whether 2 magnets will attract or repel each other depending on which poles are facing.

Introduced explicitly in
Year 3



<p>Y4</p>	<p>Plants not taught explicitly in Year 4</p>	<p><u>Plants (from Year 1)</u> Identify and name a variety of common wild and garden plants including deciduous and evergreen trees. Identify and describe the basic structure of a variety of common flowering plants including trees.</p> <p><u>Plants (from Year 2)</u> 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.</p> <p><u>Plants from Year 3</u> Identify and describe the functions of different parts of plants, roots, stem/trunk, leaves and flowers. Explore the requirements of plants for life and growth and how they vary from plant to plant.</p>	<p><u>Quizzes about Plants from Year 1, 2 and 3 to include the following information:</u></p> <p><u>Year 1</u> <u>Types of Plants</u> Some plants drop their leaves every year what are they called? Some plants keep their leaves all year; what are they called? Activities to name common wild and garden plants https://www.stem.org.uk/system/files/elibrary-resources/legacy_files_migrated/30163-The-Great-Plant-Hunt-Identikit.pdf Naming parts of a plant http://www.crickweb.co.uk/ks1science.html</p> <p><u>Year 2</u> <u>Growing Plants</u> Plants need light, water, soil and warmth to grow. Plants use light to make their own food. □ Plants have seeds, roots, stems and leaves. What happens when you grow cress seeds on cotton wool? Discussion: What happens to a bean in a see through pot? What happens when seeds are left in the dark or without water. Use experiments in time lapse video to recap upon how plants germinate and grow. www.stem.org.uk/resources/community/collection/13299/year-2-plants Year 3 Take the DK plant quiz https://www.dkfindout.com/uk/quiz/animals-and-nature/take-plants-quiz/</p>
<p>Y4</p>	<p><u>Animals Including humans</u> Describe the simple functions of the basic parts of the digestive system in humans. Identify the different types of teeth in humans and their simple functions. Construct and interpret a variety of food chains, identifying producers, predators and prey.</p>	<p><u>Animals Including humans (from Year 1)</u> Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Identify and name a variety of common animals that are carnivores, herbivores and omnivores. Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</p> <p><u>Animals Including humans (from Year 2)</u> 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</p>	<p><u>Quizzes about Animals including humans from Year 1, 2 and 3 to include the following information:</u></p> <p><u>Year1</u> Follow the link below for a revision of what an animal needs to have to belong to the mammals, fish, birds, amphibians, reptiles. https://www.sheppardsoftware.com/content/animals/kidscorner/games/animalclassgame.htm</p> <p>Interactive game and video to revise Invertebrates and Vertebrates https://www.bbc.co.uk/bitesize/topics/zn22pv4/articles/z8mbqhv</p> <p>What type of food do animals eat? To revise herbivores, carnivores and omnivores: https://www.bbc.co.uk/bitesize/topics/z6882hv/articles/z96vb9q</p> <p>Revision: What are our senses and body parts? https://www.bbc.co.uk/bitesize/topics/z9yycdm/articles/zxy987h</p> <p><u>Year 2</u> <u>Animal Babies</u> Animal babies are often very much like their parents (but not all are similar at birth). Can you think of examples of both? Animals including humans need to be fed and cared for by their parents. Can you discuss the similarities and differences of animal and human needs? Questions using flash cards to match adult animals to their offspring. Recap on names of animal babies. Questions about how animals look after their young at http://www.crickweb.co.uk/ks1science.html Looking after pets - Pets need food, water, a place to live and move, medicine when they are ill and love. Why are</p>

<p>Y4</p>	<p><u>Living Things and Habitats</u> Recognise that living things can be grouped in a variety of ways explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Recognise that environments can change and that this can sometimes pose dangers to living things.</p>	<p><u>Living Things and Habitats (from year 2)</u> 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 microhabitats 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.</p>	<p><u>Quizzes about Living Things and Habitats (from Year 2) to include the following information:</u> Year 2 Using images from Explorify can you sort into groups living, dead, never been alive? Up level difficulty of image eg) a wooden chair. Can you match the image of the creature to the habitat? Look at images of creatures and discuss how they have to adapt to live in an ever evolving habitat? Can you describe what a micro-habitat is and give examples? Can you fill in the gaps within a food chain? Food chain quizzes: https://www.twinkl.co.uk/resource/t2-s-319-science-food-chains-powerpoint-quiz</p>
<p>Y4</p>	<p><u>Sound</u> Identify how sounds are made, associating some of them with something vibrating. Recognise that vibrations from sounds travel through a medium to the ear. Find patterns between the pitch of a sound and features of the object that produced it. Find patterns between the volume of a sound and the strength of the vibrations that produced it. Recognise that</p>	<p><u>Introduced in this year group</u></p>	<p style="background-color: #cccccc;"></p>

	<p>sounds get fainter as the distance from the sound source increases.</p>		
<p>Y4</p>	<p>Electricity Identify common appliances that run on electricity. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Identify whether or not a lamp will 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</p>	<p><u>This topic introduced in this year.</u></p>	

	associate metals with being good conductors.		
Y4	Light is not taught explicitly in this unit.	<p><u>Light (from year 3)</u></p> <p>Recognise that they need light in order to see things and that dark is the absence of light. Notice that light is reflected from surfaces. Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. Recognise that shadows are formed when the light from a light source is blocked by an opaque object. Find patterns in the way that the size of shadows change.</p>	<p><u>Quizzes about Light from Year 3 to include the following information:</u></p> <p><u>Year 3</u></p> <p>Can they recognise that they need light in order to see things and that dark is the absence of light? Can they notice that light is reflected from surfaces? Can they recognise that shadows are formed when the light from a light source is blocked by an opaque object? Can they find patterns in the way that the size of shadows change?</p> <p style="text-align: center;">www.softschools.com/quizzes/science/light/quiz882.html</p>
Y4	<u>Forces not explicitly taught in year 4</u>	<p><u>Forces (from year 3)</u></p> <p>Compare how things move on different surfaces. Notice that some forces need contact between 2 objects but magnetic forces can act at a distance. Observe how magnets attract or repel each other and attract some materials and not others. Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet and identify some magnetic materials. Describe magnets as having 2 poles.</p>	<p><u>Quizzes about Forces from Year 3 to include the following information:</u></p> <p>See twinkl quiz on forces at https://www.twinkl.co.uk/resource/t2-s-335-forces-powepoint-quiz</p> <p><u>Knowledge about Magnets to frame questions around</u></p> <p>This is a force where objects are attracted or repelled to one another. Magnets have a north seeking pole and a south seeking pole. Two of the same kinds of poles repel each other. Two opposite poles attract each other.</p>

		<p>Predict whether 2 magnets will attract or repel each other depending on which poles are facing.</p>	
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<p>Y5</p>	<p>Plants not taught explicitly in Year 5</p>	<p><u>Plants (from Year 1)</u> Identify and name a variety of common wild and garden plants including deciduous and evergreen trees. Identify and describe the basic structure of a variety of common flowering plants including trees.</p> <p><u>Plants (from Year 2)</u> 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.</p> <p><u>Plants from Year 3</u> Identify and describe the functions of different parts of plants, roots, stem/trunk, leaves and flowers. Explore the requirements of plants for life and growth and how they vary from plant to plant.</p>	<p><u>Quizzes about Plants from Year 1, 2 and 3 to include the following information:</u></p> <p><u>Year 1</u> <u>Types of Plants</u> Some plants drop their leaves every year what are they called? Some plants keep their leaves all year: what are they called? Activities to name common wild and garden plants https://www.stem.org.uk/system/files/elibrary-resources/legacy_files_migrated/30163-The-Great-Plant-Hunt-Identikit.pdf Naming parts of a plant http://www.crickweb.co.uk/ks1science.html</p> <p><u>Year 2</u> <u>Growing Plants</u> Plants need light, water, soil and warmth to grow. Plants use light to make their own food. □ Plants have seeds, roots, stems and leaves. What happens when you grow cress seeds on cotton wool? Discussion: What happens to a bean in a see through pot? What happens when seeds are left in the dark or without water. Use experiments in time lapse video to recap upon how plants germinate and grow. www.stem.org.uk/resources/community/collection/13299/year-2-plantsYear 3 Take the DK plant quiz https://www.dkfindout.com/uk/quiz/animals-and-nature/take-plants-quiz/</p>
<p>Y5</p>	<p><u>Animals Including humans</u> Describe the changes as humans develop to old age.</p>	<p><u>Animals Including humans (from Year 1)</u> Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Identify and name a variety of common animals that are carnivores, herbivores and omnivores. Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</p> <p><u>Animals Including humans (from Year 2)</u> 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</p>	<p><u>Quizzes about Animals including humans from Year 1, 2, 3 and 4 to include the following information:</u></p> <p><u>Year1</u> Follow the link below for a revision of what an animal needs to have to belong to the mammals, fish, birds, amphibians, reptiles. https://www.sheppardsoftware.com/content/animals/kidscorner/games/animalclassgame.htm</p> <p>Interactive game and video to revise Invertebrates and Vertebrates https://www.bbc.co.uk/bitesize/topics/zn22pv4/articles/z8mbqhv</p> <p>What type of food do animals eat? To revise herbivores, carnivores and omnivores: https://www.bbc.co.uk/bitesize/topics/z6882hv/articles/z96vb9q</p> <p>Revision: What are our senses and body parts? https://www.bbc.co.uk/bitesize/topics/z9yycdm/articles/zxy987h</p> <p><u>Year 2</u> <u>Animal Babies</u> Animal babies are often very much like their parents (but not all are similar at birth). Can you think of examples of both? Animals including humans need to be fed and cared for by their parents. Can you discuss the similarities and differences of animal and human needs? Questions using flash cards to match adult animals to their offspring. Recap on names of animal babies. Questions about how animals look after their young at http://www.crickweb.co.uk/ks1science.html</p>

		<p>exercise, eating the right amounts of different types of food, and hygiene.</p> <p><u>Animals Including humans (from year 3)</u> 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. Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p> <p><u>Animals Including humans (from year 4)</u> Describe the simple functions of the basic parts of the digestive system in humans. Identify the different types of teeth in humans and their simple functions. Construct and interpret a variety of food chains, identifying producers, predators and prey</p>	<p>Looking after pets - Pets need food, water, a place to live and move, medicine when they are ill and love. Why are some animals not suitable to keep as pets? Can you order cards to show human and animal development? Can you sequence cards showing the basic needs of animals, including humans, for survival - water, food and air. Can you describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene etc?</p> <p><u>Year 3</u> What do animals eat? Explore quiz https://www.chesterzoo.org/schools/resources/ks2-nutrition-digestion-quiz</p> <p>Ask a range of questions about humans and some other animals skeletons and muscles for support, protection and movement https://www.educationquizzes.com/ks2/science/skeletons/</p> <p><u>Year 4</u> Can you describe the simple functions of the basic parts of the digestive system in humans? https://easyscienceforkids.com/fun-digestive-system-quiz-free-interactive-science-quiz..</p> <p>Identify the different types of teeth in humans and their simple functions construct and interpret a variety of food chains, identifying producers, predators and prey. https://www.twinkl.co.uk/resource/t2-s-327-teeth-and-and-eating-powerpoint-quiz</p>
<p><u>Y5</u></p>	<p><u>Forces</u> Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Identify the effects of air resistance, water resistance and friction, that act between moving surfaces. Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.</p>	<p><u>Forces (from year 3)</u> Compare how things move on different surfaces. Notice that some forces need contact between 2 objects but magnetic forces can act at a distance. Observe how magnets attract or repel each other and attract some materials and not others. Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet and identify some magnetic materials. Describe magnets as having 2 poles. Predict whether 2 magnets will attract or repel each other depending on which poles are facing.</p>	<p><u>Quiz about Forces from Year 3 to include the following information:</u></p> <p><u>Year 3</u> See twinkl quiz on forces at https://www.twinkl.co.uk/resource/t2-s-335-forces-powepoint-quiz</p> <p><u>Knowledge about Magnets to frame questions around</u> This is a force where objects are attracted or repelled to one another. Magnets have a north seeking pole and a south seeking pole. Two of the same kinds of poles repel each other. Two opposite poles attract each other.</p>

<p>Y5</p>	<p><u>Earth and Space.</u> Describe the movement 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 Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</p>	<p><u>Introduced in this year group.</u></p>	
<p>Y5</p>	<p><u>Materials</u> Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</p>	<p><u>Materials (from year 1)</u> 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</p> <p><u>Materials (from year 2)</u> Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</p> <p><u>Materials: Rocks and Soils (from year 3)</u> Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Describe in simple terms how fossils are formed when things that have lived are trapped within rock.</p>	<p><u>Quizzes about Materials from Year 1,2,3 and 4 to include the following information:</u></p> <p><u>Year 1</u> Can you name a range of materials? Can you guess the materials from a description of its properties? Look at a picture of a group of materials which is the odd one out and why? Use: https://explorify.wellcome.ac.uk/ to support</p> <p><u>Year 2</u> Discuss how materials properties allow them to be used for different applications. Explore collections of materials and organise in Carroll diagrams with scientific vocabulary matching such as: squashing, bending, twisting and stretching</p> <p><u>Year 3</u> Can you compare and group together different kinds of rocks on the basis of their appearance and simple physical properties? How are rocks formed? Can you describe in simple terms how fossils are formed when things that have lived are trapped within rock? Use link below: https://www.bbc.co.uk/bitesize/topics/z9bbkqt</p> <p><u>Year 4</u> Use the link below to look at the types of questions to use in a quiz to revise https://www.twinkl.co.uk/resource/t2-s-861-year-4-states-of-matter-end-of-unit-assessment</p>

	<p>demonstrate that dissolving, mixing and changes of state are reversible changes. Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.</p>	<p>Recognise that soils are made from rocks and organic matter. <u>Materials: States of Matter (from year 4)</u> Compare and group materials together, according to whether they are solids, liquids or gases. Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>	
<p>Y5</p>	<p><u>Living Things and Habitats</u> Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Describe the life process of reproduction in some plants and animals</p>	<p><u>Living Things and Habitats (from year 2)</u> 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 microhabitats 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.</p> <p><u>Living Things and Habitats (from year 4)</u> Recognise that living things can be grouped in a variety of ways explore and use classification keys to help group. Identify and name a variety of living things in their local and wider environment.</p>	<p><u>Quizzes about Living Things and Habitats from Year 2 and 4 to include the following information:</u></p> <p><u>Year 2</u> Using images from Explorify can you sort into groups living, dead, never been alive? Up level difficulty of image eg) a wooden chair. Can you match the image of the creature to the habitat? Look at images of creatures and discuss how they have to adapt to live in an ever evolving habitat? Can you describe what a micro-habitat is and give examples? Can you fill in the gaps within a food chain? Food chain quizzes: https://www.twinkl.co.uk/resource/t2-s-319-science-food-chains-powerpoint-quiz</p> <p><u>Year 4</u> <u>Living Things and Habitats</u> What different ways can you group living things. Can you complete the classification keys to help group, identify and name a variety of living things in their local and wider environment? Can you recognise that environments can change and that this can sometimes pose dangers to living things?</p>

		Recognise that environments can change and that this can sometimes pose dangers to living things.	
Y5	Light is not taught explicitly in this unit.	<p><u>Light (from year 3)</u></p> <p>Recognise that they need light in order to see things and that dark is the absence of light.</p> <p>Notice that light is reflected from surfaces.</p> <p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.</p> <p>Recognise that shadows are formed when the light from a light source is blocked by an opaque object.</p> <p>Find patterns in the way that the size of shadows change.</p>	<p><u>Quizzes about Light from Year 3 to include the following information:</u></p> <p><u>Year 3</u></p> <p>Can they recognise that they need light in order to see things and that dark is the absence of light?</p> <p>Can they notice that light is reflected from surfaces?</p> <p>Can they recognise that shadows are formed when the light from a light source is blocked by an opaque object?</p> <p>Can they find patterns in the way that the size of shadows change?</p> <p>www.softschools.com/quizzes/science/light/quiz882.html</p>
Y5	Sound not taught explicitly in Year 5	<p><u>Sound (from Year 4)</u></p> <p>Identify how sounds are made, associating some of them with something vibrating.</p> <p>Recognise that vibrations from sounds travel through a medium to the ear.</p> <p>Find patterns between the pitch of a sound and features of the object that produced it.</p> <p>Find patterns between the volume of a sound and the strength of the vibrations that produced it.</p> <p>Recognise that sounds get fainter as the distance from the sound source increases.</p>	<p><u>Quizzes about Sound from Year 4 to include the following information:</u></p> <p>Can they identify how sounds are made, associating some of them with something vibrating?</p> <p>Can they recognise that vibrations from sounds travel through a medium to the ear?</p> <p>Can they find patterns between the pitch of a sound and features of the object that produced it?</p> <p>Can they find patterns between the volume of a sound and the strength of the vibrations that produced it?</p> <p>Can they recognise that sounds get fainter as the distance from the sound source increases?</p> <p>https://www.tes.com/teaching-resource/sound-quiz-3006918</p> <p>https://www.twinkl.co.uk/resource/t2-s-875-year-4-sound-end-of-unit-assessment</p> <p>https://www.twinkl.co.uk/resource/t2-s-340-sound-quiz-powerpoint</p>
Y5	<u>Electricity not taught explicitly in year 5</u>	<p><u>Electricity from Year 4</u></p> <p>Identify common appliances that run on electricity.</p> <p>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs,</p>	<p><u>Quizzes about Electricity from Year 4 to include the following information:</u></p> <p><u>Year 4</u></p> <p>Know how to build a circuit</p> <p>Quiz at</p> <p>www.switchedonkids.org.uk/fun-and-learning/electricity-quiz</p> <p>Look at the activity sheets in the lesson plans as the quiz is quite easy.</p>

		<p>switches and buzzers. Identify whether or not a lamp will 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 with being good conductors.</p>	
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<p>Y6</p>	<p><u>Plants not taught explicitly in Year 6</u></p>	<p><u>Plants (from Year 1)</u> Identify and name a variety of common wild and garden plants including deciduous and evergreen trees. Identify and describe the basic structure of a variety of common flowering plants including trees.</p> <p><u>Plants (from Year 2)</u> 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.</p> <p><u>Plants from Year 3</u> Identify and describe the functions of different parts of plants, roots, stem/trunk, leaves and flowers. Explore the requirements of plants for life and growth and how they vary from plant to plant.</p>	<p><u>Quizzes about Plants from Year 1, 2 and 3 to include the following information:</u></p> <p><u>Year 1</u> <u>Types of Plants</u> Some plants drop their leaves every year what are they called? Some plants keep their leaves all year; what are they called? Activities to name common wild and garden plants https://www.stem.org.uk/system/files/elibrary-resources/legacy_files_migrated/30163-The-Great-Plant-Hunt-Identikit.pdf Naming parts of a plant http://www.crickweb.co.uk/ks1science.html</p> <p><u>Year 2</u> <u>Growing Plants</u> Plants need light, water, soil and warmth to grow. Plants use light to make their own food. □ Plants have seeds, roots, stems and leaves. What happens when you grow cress seeds on cotton wool? Discussion: What happens to a bean in a see through pot? What happens when seeds are left in the dark or without water. Use experiments in time lapse video to recap upon how plants germinate and grow. www.stem.org.uk/resources/community/collection/13299/year-2-plants</p> <p><u>Year 3</u> Take the DK plant quiz https://www.dkfindout.com/uk/quiz/animals-and-nature/take-plants-quiz/</p>
<p>Y6</p>	<p><u>Animals Including humans</u> Identify and name the main parts of the human circulatory system, and describe the functions 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</p>	<p><u>Animals Including humans (from Year 1)</u> Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Identify and name a variety of common animals that are carnivores, herbivores and omnivores. Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</p> <p><u>Animals Including humans (from Year 2)</u> 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.</p> <p><u>Animals Including humans (from year 3)</u></p>	<p><u>Quizzes about Animals including humans from Year 1, 2, 3, 4 and 5 to include the following information:</u></p> <p><u>Year 1</u> Follow the link below for a revision of what an animal needs to have to belong to the mammals, fish, birds, amphibians, reptiles. https://www.sheppardssoftware.com/content/animals/kidscorner/games/animalclassgame.htm</p> <p>Interactive game and video to revise Invertebrates and Vertebrates https://www.bbc.co.uk/bitesize/topics/zn22pv4/articles/z8mbqhv</p> <p>What type of food do animals eat? To revise herbivores, carnivores and omnivores: https://www.bbc.co.uk/bitesize/topics/z6882hv/articles/z96vb9q</p> <p>Revision: What are our senses and body parts? https://www.bbc.co.uk/bitesize/topics/z9yycdm/articles/zxy987h</p> <p><u>Year 2</u> <u>Animal Babies</u> Animal babies are often very much like their parents (but not all are similar at birth). Can you think of examples of both? Animals including humans need to be fed and cared for by their parents. Can you discuss the similarities and differences of animal and human needs? Questions using flash cards to match adult animals to their offspring.</p>

		<p>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. Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p> <p><u>Animals Including humans (from year 4)</u> Describe the simple functions of the basic parts of the digestive system in humans. Identify the different types of teeth in humans and their simple functions. Construct and interpret a variety of food chains, identifying producers, predators and prey</p> <p><u>Animals Including humans (from Year 5)</u> Describe the changes as humans develop to old age.</p>	<p>Recap on names of animal babies. Questions about how animals look after their young at http://www.crickweb.co.uk/ks1science.html</p> <p>Looking after pets - Pets need food, water, a place to live and move, medicine when they are ill and love. Why are some animals not suitable to keep as pets? Can you order cards to show human and animal development? Can you sequence cards showing the basic needs of animals, including humans, for survival - water, food and air. Can you describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene etc?</p> <p><u>Year 3</u> What do animals eat? Explore quiz https://www.chesterzoo.org/schools/resources/ks2-nutrition-digestion-quiz</p> <p><u>Year 4</u> Can you describe the simple functions of the basic parts of the digestive system in humans? https://easyscienceforkids.com/fun-digestive-system-quiz-free-interactive-science-quiz.. Identify the different types of teeth in humans and their simple functions construct and interpret a variety of food chains, identifying producers, predators and prey. https://www.twinkl.co.uk/resource/t2-s-327-teeth-and-and-eating-powerpoint-quiz</p> <p><u>Year 5</u> Discuss what are the stages of human development?</p>
<u>Y6</u>	<p><u>Living Things and Habitats</u> Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. Give reasons for classifying plants and animals based on specific characteristics.</p>	<p><u>Living Things and Habitats (from year 2)</u> 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 microhabitats 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.</p> <p><u>Living Things and Habitats (from year 4)</u> Recognise that living things can be grouped in a variety of ways explore and use classification keys to help group. Identify and name a variety of living things in their local and wider environment.</p>	<p><u>Quizzes about Living Things and Habitats from Year 2 and 4 to include the following information:</u></p> <p><u>Year 2</u> Using images from Explorify can you sort into groups living, dead, never been alive? Up level difficulty of image eg) a wooden chair. Can you match the image of the creature to the habitat? Look at images of creatures and discuss how they have to adapt to live in an ever evolving habitat? Can you describe what a micro-habitat is and give examples? Can you fill in the gaps within a food chain? Food chain quizzes: https://www.twinkl.co.uk/resource/t2-s-319-science-food-chains-powerpoint-quiz</p> <p><u>Year 4</u> <u>Living Things and Habitats</u> What different ways can you group living things. Can you complete the classification keys to help group, identify and name a variety of living things in their local and wider environment?</p>

		<p>Recognise that environments can change and that this can sometimes pose dangers to living things.</p> <p><u>Living Things and Habitats (from year 5)</u> Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Describe the life process of reproduction in some plants and animals</p>	<p>Can you recognise that environments can change and that this can sometimes pose dangers to living things?</p> <p><u>Year 5</u> Can you describe the life cycle of a mammal?</p>
<p>Y6</p>	<p><u>Materials not taught explicitly</u></p>	<p><u>Materials (from year 1)</u> 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</p> <p><u>Materials (from year 2)</u> Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</p> <p><u>Materials: Rocks and Soils (from year 3)</u> Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Describe in simple terms how fossils are formed when things that have lived are trapped within rock. Recognise that soils are made from rocks and organic matter.</p> <p><u>Materials: States of Matter (from year 4)</u> Compare and group materials together, according to whether they are solids, liquids or gases. Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p> <p><u>Materials: Properties and changes (from</u></p>	<p><u>Quizzes about Materials from Year 1,2,3, 4 and 5 to include the following information:</u></p> <p><u>Year 1</u> Can you name a range of materials? Can you guess the materials from a description of its properties? Look at a picture of a group of materials which is the odd one out and why? Use: https://explorify.wellcome.ac.uk/ to support</p> <p><u>Year 2</u> Discuss how materials properties allow them to be used for different applications. Explore collections of materials and organise in Carroll diagrams with scientific vocabulary matching such as: squashing, bending, twisting and stretching</p> <p><u>Year 3</u> Can you compare and group together different kinds of rocks on the basis of their appearance and simple physical properties? How are rocks formed? Can you describe in simple terms how fossils are formed when things that have lived are trapped within rock? Use link below: https://www.bbc.co.uk/bitesize/topics/z9bbkqt</p> <p><u>Year 4</u> Use the link below to look at the types of questions to use in a quiz to revise https://www.twinkl.co.uk/resource/t2-s-861-year-4-states-of-matter-end-of-unit-assessment</p> <p><u>Year 5</u> Use the link below to ask quiz questions https://www.twinkl.co.uk/resource/t2-s-322-material-properties-powerpoint-quiz</p>

		<p><u>year 5)</u></p> <p>Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.</p> <p>Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.</p> <p>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.</p> <p>Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</p> <p>Demonstrate that dissolving, mixing and changes of state are reversible changes.</p> <p>Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.</p>	
<p>Y6</p>	<p><u>Light</u></p> <p>Recognise that light appears to travel in straight lines.</p> <p>Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.</p> <p>Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.</p> <p>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p>	<p><u>Light (from year 3)</u></p> <p>Recognise that they need light in order to see things and that dark is the absence of light.</p> <p>Notice that light is reflected from surfaces.</p> <p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.</p> <p>Recognise that shadows are formed when the light from a light source is blocked by an opaque object.</p> <p>Find patterns in the way that the size of shadows change.</p>	<p><u>Quizzes about Light from Year 3 to include the following information:</u></p> <p>Year 3</p> <p>Can they recognise that they need light in order to see things and that dark is the absence of light?</p> <p>Can they notice that light is reflected from surfaces?</p> <p>Can they recognise that shadows are formed when the light from a light source is blocked by an opaque object?</p> <p>Can they find patterns in the way that the size of shadows change?</p> <p>www.softschools.com/quizzes/science/light/quiz882.html</p>

<p>Y6</p>	<p><u>Electricity</u> Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. 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. Use recognised symbols when representing a simple circuit in a diagram</p>	<p><u>Electricity from Year 4</u> Identify common appliances that run on electricity. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Identify whether or not a lamp will 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 with being good conductors.</p>	<p><u>Quizzes about Electricity from Year 4 to include the following information:</u> <u>Year 4</u> Know how to build a circuit Quiz at www.switchedonkids.org.uk/fun-and-learning/electricity-quiz Look at the activity sheets in the lesson plans as the quiz is quite easy.</p>
<p>Y6</p>	<p><u>Forces not taught explicitly</u></p>	<p><u>Forces (from year 3)</u> Compare how things move on different surfaces. Notice that some forces need contact between 2 objects but magnetic forces can act at a distance. Observe how magnets attract or repel each other and attract some materials and not others. Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet and identify some magnetic materials. Describe magnets as having 2 poles. Predict whether 2 magnets will attract or repel each other depending on which poles are facing.</p>	<p><u>Quizzes about Forces from Year 3 and 5 to include the following information:</u> <u>Year 3</u> See twinkl quiz on forces at https://www.twinkl.co.uk/resource/t2-s-335-forces-powepoint-quiz <u>Knowledge about Magnets to frame questions around</u> This is a force where objects are attracted or repelled to one another. Magnets have a north seeking pole and a south seeking pole. Two of the same kinds of poles repel each other. Two opposite poles attract each other. <u>Year 5</u> Can they explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object?</p>

		<p><u>Forces (from year 5)</u> Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Identify the effects of air resistance, water resistance and friction, that act between moving surfaces. Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.</p>	<p>Can they identify the effects of air resistance, water resistance and friction, that act between moving surfaces? Can they recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect? https://www.twinkl.co.uk/resource/t2-s-335-forces-powepoint-quiz https://quizlet.com/186803134/year-5-forces-flash-cards https://www.tes.com/teaching-resource/forces-and-friction-quiz-6335578</p>
Y6	Sound not taught explicitly	<p><u>Sound (from Year 4)</u> Identify how sounds are made, associating some of them with something vibrating. Recognise that vibrations from sounds travel through a medium to the ear. Find patterns between the pitch of a sound and features of the object that produced it. Find patterns between the volume of a sound and the strength of the vibrations that produced it. Recognise that sounds get fainter as the distance from the sound source increases.</p>	<p><u>Quizzes about Sound from Year 4 to include the following information:</u> Can they identify how sounds are made, associating some of them with something vibrating? Can they recognise that vibrations from sounds travel through a medium to the ear? Can they find patterns between the pitch of a sound and features of the object that produced it? Can they find patterns between the volume of a sound and the strength of the vibrations that produced it? Can they recognise that sounds get fainter as the distance from the sound source increases? https://www.tes.com/teaching-resource/sound-quiz-3006918 https://www.twinkl.co.uk/resource/t2-s-875-year-4-sound-end-of-unit-assessment https://www.twinkl.co.uk/resource/t2-s-340-sound-quiz-powerpoint</p>
Y6	Earth and Space not taught explicitly	<p><u>Earth and Space (from year 5)</u> Describe the movement 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 Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</p>	<p><u>Quizzes about Earth and Space (from Year 5) to include the following information:</u> Can you describe the movement of the Earth and other planets relative to the sun in the solar system? Can you describe the movement of the moon relative to the Earth? Can you describe the sun, Earth and moon as approximately spherical bodies? Can you use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky? Use: https://www.twinkl.co.uk/resource/t2-s-1365-ks2-space-quiz-powerpoint</p>

Y6

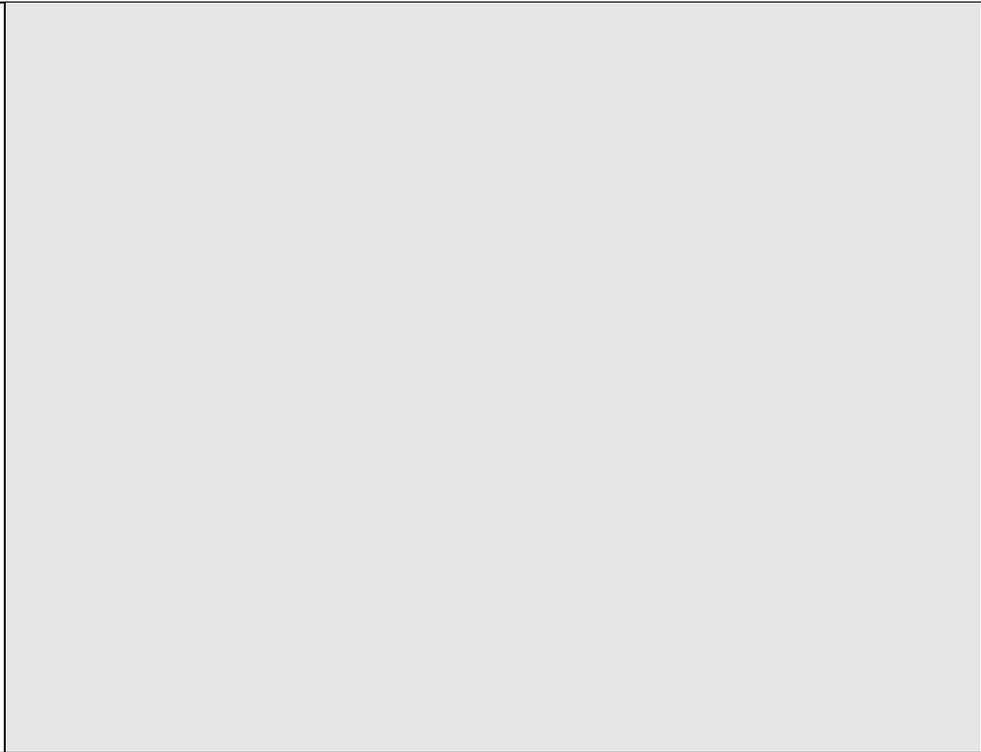
Human and Inheritance

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.

Introduced in year 6



Appendix 2 Progression in working scientifically

	EYFS	Key Stage 1 Year 1 and Year 2
Questioning	Show curiosity about objects, events and people Playing & Exploring Questions why things happen Speaking: 30-50 months	Explore the world around them and raise their own simple questions
Ideas	Engage in open-ended activity Playing & Exploring	Experience different types of science enquiries, including practical activities
Planning	Take a risk, engage in new experiences and learn by trial and error Playing & Exploring	Begin to recognise different ways in which they might answer scientific questions
Fair tests	Find ways to solve problems / find new ways to do things / test their ideas Creating & Thinking Critically	Carry out simple tests
Comparing	Develop ideas of grouping, sequences, cause and effect Creating & Thinking Critically Know about similarities and differences in relation to places, objects, materials and living things ELG: The World	Use simple features to compare objects, materials and living things and, with help, decide how to sort and group them (identifying and classifying)
Using Sources	Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world The World: 30-50 months	Ask people questions and use simple secondary sources to find answers
Observing	Closely observes what animals, people and vehicles do The World 8-20 months Use senses to explore the world around them Playing & Exploring	Observe closely using simple equipment with help, observe changes over time
Making Links	Make links and notice patterns in their experience Creating & Thinking Critically	With guidance, they should begin to notice patterns and relationships
Making Measurements	Choose the resources they need for their chosen activities ELG: Self Confidence & Self Awareness Handle equipment and tools effectively ELG: Moving & Handling	Use simple measurements and equipment (e.g. hand lenses, egg timers) to gather data
Recording	Create simple representations of events, people and objects Being Imaginative: 40-60+ months	Record simple data
Conclusions	Answer how and why questions about their experiences ELG: Understanding Make observations of animals and plants and explain why some things occur, and talk about changes ELG: The World	Use their observations and ideas to suggest answers to questions
Discussion	Develop their own narratives and explanations by connecting ideas or events ELG: Speaking Builds up vocabulary that reflects the breadth of their experience Understanding: 30-50 months	With help, they should record and communicate their findings in a range of ways and begin to use simple scientific language

	Lower Key Stage 2 Year 3 and Year 4	Upper key Stage 2 Year 5 and Year 6
Questioning	Raise their own relevant questions about the world around them	Use their science experiences to explore ideas and raise different kinds of questions
Ideas	Should be given a range of scientific experiences including different types of science enquiries to answer questions	Talk about how scientific ideas have developed over time
Planning	Start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions	Select and plan the most appropriate type of scientific enquiry to use to answer scientific questions
Fair tests	Set up simple practical enquiries, comparative and fair tests Recognise when a simple fair test is necessary and help to decide how to set it up	Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why
Comparing	Talk about criteria for grouping, sorting and classifying; and use simple keys	Use and develop keys and other information records to identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment
Using Sources	Recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations	Recognise which secondary sources will be most useful to re- search their ideas and begin to separate opinion from fact
Observing	Make systematic and careful observations	Observe closely using simple equipment with help, observe changes over time
Making Links	Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them	Look for different causal relationships in their data and identify evidence that refutes or supports their ideas
Making Measurements	Take accurate measurements using standard units	Use simple measurements and equipment (e.g. hand lenses, egg timers) to gather data
Recording	Collect and record data from their own observations and measurements in a variety of ways: notes, bar charts and tables, standard units, drawings, labelled diagrams, keys and help to make decisions about how to analyse this data	Decide how to record data and results of increasing complexity from a choice of familiar approaches: scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
Conclusions	With help, pupils should look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions	Identify scientific evidence that has been used to support or refute ideas or arguments
Discussion	Use relevant simple scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences, including oral and written explanations, displays or presentations of results and conclusions	Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas,
Questioning	With support, they should identify new questions arising from the data, making predictions for new values within or beyond the data they have collected and finding ways of improving what they have already done	Use their results to make predictions and identify when further observations, comparative and fair tests might be needed

