



The Science Curriculum

Year 2

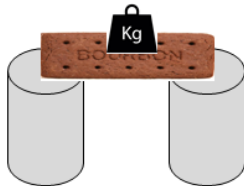
Intent	<p>At Benjamin Adlard Primary School we believe that a high quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils 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.</p> <p>Science in our school is about developing children's ideas and ways of working that enable them to make sense of the world in which they live through investigation, as well as using and applying process skills. The staff at Benjamin Adlard Primary School ensure that all children are exposed to high quality teaching and learning experiences, which allow children to explore their outdoor environment and locality, thus developing their scientific enquiry and investigative skills. They are immersed in scientific vocabulary, which aids children's knowledge and understanding not only of the topic they are studying, but of the world around them. We intend to provide all children regardless of ethnic origin, gender, class, aptitude or disability, with a broad and balanced science curriculum.</p>
Implementation	<p>The planning and teaching of the science curriculum is designed to build on knowledge and skills taught in previous units and year groups. Teachers use the school's science progression framework to plan and teach key concepts and scientific enquiry skills in a progressive manner and support the acquisition and accumulation of knowledge. New vocabulary is planned and is taught explicitly to children, teaching the meaning of homonyms where necessary. Retrieval practice techniques are used to help children to memorise key concepts for use in future science lessons and across the curriculum. When teaching practical science, teachers combine demonstrations with opportunities for children to carry out their own investigations, gaining hands-on experience handling specialist equipment and materials.</p>
Impact	<p>Our science curriculum provides the foundations for our children for understanding the world they live in. Through building up a body of knowledge and key concepts, our children develop a sense of excitement and curiosity and they understand how science can be used to explain what has occurred, predict how things will behave and analyse the causes. Our children understand the value of science and enjoy working scientifically. They are able to communicate their ideas and findings with confidence and using different styles. Our children have a passion for science and engage enthusiastically in their learning. As a result, they achieve well and are keen to continue studying science as they move on to the next stage of their education.</p>

	EYFS	End of Key Stage One	Lower Key Stage Two	Upper Key Stage 2
Working scientifically	<ul style="list-style-type: none"> Observe things closely through a variety of means (photos, magnifiers) With support, notice and discuss patterns around them. 	<ul style="list-style-type: none"> Explore the world around them and raise their own simple questions. Begin to recognise that there are different ways to answer a scientific question. Experience a variety of practical scientific enquiries. Carry out a simple test. Use simple features to compare objects, materials and living things and, with help, decide how to sort and group them (Identify and classify). Observe closely using simple equipment: pooters, magnifying glasses With guidance, begin to notice patterns and relationships. Use simple measurements and equipment to gather data (egg timers, lenses, magnifiers) Use observations and ideas to suggest answers to questions. 	<ul style="list-style-type: none"> Raise their own relevant questions about the world around them. Provide a range of different scientific experiences including different types of scientific enquiries to answer questions. Start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions. Set up simple scientific enquiries, comparatives and fair tests. Recognise when a fair test is necessary and help to decide how to set it up. Talk about the criteria for sorting, grouping and classifying; and use simple keys. Make systematic and careful observations. Help to make decisions about the observations to make, how long to make them for and the type of simple equipment that might be used. Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them. Take accurate measurements using standard units. Learn how to use a greater range of equipment including data loggers and thermometers. 	<ul style="list-style-type: none"> Use their own science experiences to explore ideas and raise different kinds of questions. Talk about how scientific ideas have developed over time. Select and plan the most appropriate type of scientific enquiry to use to answer scientific questions. Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why. Use and development 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. Make decisions about what observations to make, what measurements to use and long to make them for. Look for different causal relationships in data and identify evidence that refutes or supports their ideas. Choose the most appropriate equipment to make measurements with increasing precision and explain how to use it accurately. Take repeat measurements where appropriate.
Communicating Scientifically	<ul style="list-style-type: none"> With support, talk about patterns and changes that have been seen. 	<ul style="list-style-type: none"> Record simple data. Talk about what you have found out and how you have found out. With support, record and communicate findings in a range of ways, beginning to use simple scientific language. 	<ul style="list-style-type: none"> Collect and record data from observations and measurements in a variety of ways: notes, bar charts and tables, standard units, drawings, labelled diagrams and keys. Look for changes, patterns, similarities and differences in data in order to draw simple conclusions and answer questions. 	<ul style="list-style-type: none"> 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. Identify scientific evidence that has been used to refute or support ideas or arguments. Use relevant scientific language and illustrations to discuss, communicate and justify scientific ideas, use oral and written forms such as displays and other presentations to report conclusions, causal relationships and explanations of degrees of trust in results. Use results to make predictions and identify when further observations, comparative and fair tests might be needed.
Animals, including humans	<ul style="list-style-type: none"> Identify and name some common animals. This will be linked to personal experiences such as pets, books or days out with family. 	<ul style="list-style-type: none"> 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. Understand that animals, including humans, have offspring which grow into adults. Describe the basic needs of animals, including humans, for survival: water, food, air Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. 	<ul style="list-style-type: none"> Know that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food and that they get their nutrition from the food they eat. Know that humans and some other animals have skeletons and muscles for support and movement. Know the basic functions of the human digestive system. Know the types of teeth in the human mouth and their function. Know how to construct and interpret a food chain, identifying predators, prey and producers. 	<ul style="list-style-type: none"> Know how humans develop and change to old age. Know how to group plants, animals and microorganisms based on common, observable characteristics. Give reasons for the classification chosen. Know the main parts of the human circulatory system. Know the functions of the heart, blood vessels and blood. Know what impact diet, exercise, drugs and lifestyle has on the function of the human body. Know how water is transported within animals.

Living Things and their Habitats	<ul style="list-style-type: none"> Make observations of living things in the immediate environment. 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Know that living things can be classified in different ways. Know how to use a classification key to group, identify and name a variety of living things. Know that environments can change and that these changes can pose danger to living things. 	<ul style="list-style-type: none"> Know how lifecycles differ for mammals, insects and birds. Know the process of reproduction for plants and animals.
Plants	<ul style="list-style-type: none"> With support, make observations of plants in the immediate environment 	<ul style="list-style-type: none"> Identify and name a variety of common wild and garden plants. Identify and name a variety of native evergreen and deciduous trees. Know the basic structure of a variety of common flowering plants including: petal, leaf, trunk, branch, stem, root, fruit, bulb, seed Observe and describe how bulbs and seeds grow into mature plants. Know that plants need water, light and a suitable temperature to grow and stay healthy. 	<ul style="list-style-type: none"> Know the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. Know the requirements of a plant for life and growth (air, water, nutrients from soil, and room to grow) and how they vary from plant to plant. Investigate the way in which water is transported in plants. Know the life cycle of a flowering plants: pollination, seed formation and seed dispersal. 	
Materials, their properties and change	<ul style="list-style-type: none"> Use a variety of materials during independent play: plastic jugs, wooden blocks, fabric puppets. 	<ul style="list-style-type: none"> 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 objects. 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, brick, rock, paper and cardboard for particular uses. 		<ul style="list-style-type: none"> Know how to group materials based on their hardness, solubility, transparency, conductivity and response to magnets. Know that some materials will dissolve in liquid to form a solution and how to recover a substance from a solution. Know how to best separate a mixture using filtering, sieving and evaporating. Know that dissolving, mixing and changes of state are reversible. Know that some changes result in the formation of a new material and that this is usually irreversible.
Seasonal Changes	<ul style="list-style-type: none"> Observe and name the types of weather seen on a daily basis. 	<ul style="list-style-type: none"> Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies. 		
Rocks			<ul style="list-style-type: none"> Compare and group different kinds of rocks on the basis of their appearance and simple physical properties. Describe in simple terms how fossils are formed. Know that soils are made from rocks and organic matter. 	

Light	<ul style="list-style-type: none"> Explore sources of light: torches, ceiling lights, the sun, the moon. 		<ul style="list-style-type: none"> Know that light is needed in order to see. Know that dark is the absence of light. Know that light can be reflected from surfaces. Know that light from the sun can be dangerous and know some ways to protect yourself. Know how shadows are formed and that their size can be changed. 	
Forces and Magnets	<ul style="list-style-type: none"> Explore and investigate bar magnets. Can you find an object that will stick to a magnet? 		<ul style="list-style-type: none"> Know that objects will move in different ways on different surfaces. Know that some forces can act at a distance and that some forces need direct contact between two objects. Know that magnets have two poles and how magnets behave depending on which of the poles meet. Know that some objects are attracted to metals but some are not. 	<ul style="list-style-type: none"> Know that an unsupported object will fall to the Earth because of the effect of gravity. Know how water resistance, air resistance and friction act between moving surfaces. Know how levers, pulleys and gears allow a smaller force to have a greater effect.
States of Matter	<ul style="list-style-type: none"> Explore malleable materials with hands, fingers and a variety of tools. 	<ul style="list-style-type: none"> Know that some objects can be squashed, bent, twisted or stretched depending on the material they are made from. 	<ul style="list-style-type: none"> Know if a material is a solid, liquid or gas. Know that heating or cooling a material can change its state. Know that some changes can be reversed and that some are irreversible. Know that evaporation rate increases as temperature increases. 	
Sound			<ul style="list-style-type: none"> Know that some sounds are created when an object vibrates. Know that vibrations from sounds travel through a medium (usually the air) to the ear. Know that features of an object will change the pitch of a sound. Know that as the strength of vibrations increases, the volume of a sound will increase. Know that sounds get fainter as the distance from the sound source increases. 	
Electricity			<ul style="list-style-type: none"> Know that common appliances require electricity to run. Know how to construct a simple series circuit. Know the basic parts of an electrical circuit. Know that a circuit must complete a full loop in order for the electricity to flow around it. Know how a switch affects a series circuit. Know that some materials conduct electricity and some insulate electricity. 	
Earth and Space				<ul style="list-style-type: none"> Know how the Earth and the other planets move in relation to the sun. Know how the moon moves in relation to the earth. Know that the sun, moon and earth are approximately spherical bodies. Know that the rotation of the Earth explains the concept of day and night.

Evolution and Inheritance				<ul style="list-style-type: none">• Know that living things have changed over time.• Know that fossils provide information about living things that inhabited the earth millions of years ago.• Know that living things produce offspring of the samekind, but that normally offspring vary and are not identical to their parents.• Know that animals have adapted to suit their environment in different ways and that this adaption may lead to evolution.
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Key Stage 1 – Year 2		Autumn 1
Materials and their Properties	<p><u>National Curriculum objectives:</u></p> <p>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</p> <p>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</p> <p><u>Cross Curricular Links:</u></p> <p>Mathematics – Weight - Choose and use appropriate standard units to estimate and measure mass (kg/g) to the nearest appropriate unit</p>	
Prior knowledge	Year 1 – Materials and their properties. In Year 1, children distinguished between an object and the material from which it was made. They identified and named a variety of everyday materials and described simple properties.	
Future knowledge	Year 4 – States of matter	
	Year 5 – Properties and changes of materials.	
Key Vocabulary		Investigations
simple test, suggest, explain, describe, observe, record, report		<p><u>Biscuit Bridges - Which biscuit makes the strongest bridge?</u></p> <ul style="list-style-type: none">• How could we find out which biscuit will make the strongest bridge?• Brainstorm ideas and take ideas for performing a simple test to find out.• Predict which biscuit will be the strongest - suggest reasons why.• Test the following biscuits:<ul style="list-style-type: none">○ Rich tea finger○ Bourbon○ Jammy Dodger○ Lotus Biscuit○ Digestive• Add weights one at a time to the biscuit until it snaps.• Count the weights and record in a simple table.
Scientific Skills		
<ul style="list-style-type: none">• Ask simple questions and recognise that they can be answered in different ways• Observe closely, using simple equipment• Perform simple tests• Use observations and ideas to suggest answers to questions• Gather and record data to help in answering questions		

	<ul style="list-style-type: none"> Use the results to work out which biscuit is the strongest and give possible reasons why. Write a report.
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Knowledge

- Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.
 - Glass - Windows - hard, waterproof, transparent
 - Wood - Table - Hard, smooth
 - Metal - cutlery - Hard, smooth, shiny (decorative), waterproof
 - Paper - Newspapers - soft (easily folded, printed on), recyclable

Definitions

Suitability – Being right for a particular purpose.

Compare – To say how things are similar and how they are different.

Suitability – Right for a particular purpose.

Brainstorm – To share ideas with a group of people

Medium Term Planning					
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
To identify uses of different everyday materials.	To identify and classify the uses of everyday materials.	To identify the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.	To find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching by changing the shape of objects.	To find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching, in the context of recycling.	To learn about the inventor John McAdam.

Key Stage 1 – Year 2		Autumn 2
Animals, including humans	<p><u>National Curriculum objectives:</u></p> <p>Notice that animals, including humans, have offspring which grow into adults</p> <p>Find out about and describe the basic needs of animals, including humans, for survival (water, food, and air)</p> <p>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p> <p><u>Cross-curricular Links:</u></p> <p>Physical Education: Encouraging children to be active for sustained periods of time. Ensuring pupils lead healthy, active lives.</p>	
Prior knowledge	Year 1 – Animals including humans. In year 1, children learnt about different body parts and the 5 senses.	
Future knowledge	Year 3 - Animals including humans – Nutrition and diet – Food groups and how they help the body.	
	Year 4 – Human Digestive system	
	Year 6 – Nutrient and water transportation.	
Key Vocabulary		Investigations
needs, exercise, food, protein, carbohydrate, fats, fruit, vegetable, vitamin, mineral, water, sugary, growth, muscle, energy		<p><u>What type of food is this?</u></p> <p>Identify and classify foods into the main food groups.</p>
Scientific Skills		
<ul style="list-style-type: none">Identify and classifyGather and record data to help in answering questions		
Knowledge		
<ul style="list-style-type: none">Describe the basic needs of animals, including humans, for survival:<ul style="list-style-type: none">Air		

- Food
- Water

- Describe the importance for humans of exercise:
- What counts as exercise? - running, walking, dancing, swimming, touching your toes.
- It makes your heart happy - The heart is a muscle that needs to be exercised to make the muscle stronger and therefore deliver oxygen to the body more effectively.
- It can make other muscles in your body stronger.
- It can make you more flexible meaning you can bend and stretch without any pain or tightness.
- It can make you feel happy. Exercise makes your body release chemicals that make you feel happier.
- Describe the importance of eating the right amounts of different types of food:
 - There are 5 food groups:
 - Protein - Meat, fish, eggs and beans - Important for growth and building muscles.
 - Fat - Oils and spreads - Choose unsaturated oils and only have in small amount.
 - Carbohydrates - Bread, rice, potatoes, pasta and other starchy foods - Important for providing energy
 - Fruit and vegetables - Aim to eat 5 portions every day - Important source of vitamins and minerals
 - Milk and dairy foods - Cheese, milk, yoghurt - Important for strong teeth and bones
 - High fat and sugary food - Eat less often and in small amounts.

Definitions

Portion – The amount of food served to a person at one time.


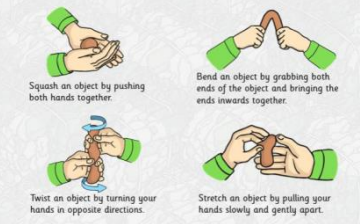
Survival – Continuing to live or exist.

A Balanced Plate



Medium Term Planning					
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
<p>To notice that animals, including humans have offspring which grow into adults. Identifying and classifying.</p> <p>To match, sort and group young animals to their adults.</p>	<p>To find out how animals change as they grow into adults.</p>	<p>To compare the stages of the human life cycle.</p>	<p>To find out about and describe the basic needs of animals, including humans for survival (water, food and air)</p>	<p>To describe the importance for humans to eat the right amounts of different food.</p> <p>To describe the importance of exercise for humans.</p>	<p>To describe the importance of hygiene to humans.</p>

Key Stage 1 – Year 2		Spring 1
Scientific Enquiry	<p><u>National Curriculum objectives:</u></p> <p>Asking simple questions and recognising that they can be answered in different ways</p> <p>Observing closely, using simple equipment</p> <p>Performing simple tests</p> <p>Identifying and classifying</p> <p>Using their observations and ideas to suggest answers to questions</p> <p>Gathering and recording data to help in answering questions.</p> <p><u>Cross-Curricular Links:</u></p> <p>Mathematics: Weight - Choose and use appropriate standard units to estimate and measure mass (kg/g) to the nearest appropriate unit</p>	
Prior knowledge	Year 1 – Scientific enquiry. In Year 1, children learnt to ask simple questions, observe closely, perform simple tests and use their observations to suggest answers to questions.	
Future knowledge	Year 5 – Scientific enquiry	
Key Vocabulary	Investigations	
Mix, whisk, stretch, squash, bend, twist, melt, liquid, solid, ask, predict, observe, test, soluble, insoluble, record, chart, table, compare, conclude	<p><u>Messy Materials</u></p> <p>Investigate a range of everyday materials and find out how each one changes when it is mixed with water.</p> <p>Test salt, wax, flour, cornflour, clay, sugar, cooking oil, glitter and shaving foam.</p> <p>Make predictions before testing and record using a simple chart.</p> <p><u>Bubblicious!</u></p> <p>Which soap products create the best bubbles?</p> <p>Test wishing up liquid, soap flakes, bubble bath, hand wash, a bar of soap and non-biological washing powder.</p>	

<h2>Scientific Skills</h2> <ul style="list-style-type: none"> • Ask simple questions and recognise that they can be answered in different ways • Observe closely, using simple equipment • Perform simple tests • Identify and classify • Use observations and ideas to suggest answers to questions • Gather and record data to help in answering questions 	<p>Make predictions before testing and record using a pre-prepared table or chart.</p> <p>Test by using whisks, straws, potato mashers and sponges to create bubbles.</p> <p>Find out and record which creates the longest lasting, biggest, smallest and foamiest bubbles.</p> <p>Conclude findings in a written report. Compare to original predictions.</p> <p><u>The Melting Process</u></p> <p>Select a range of foods: butter, chocolate, marshmallows, ice cream, cheese and sugar.</p> <p>Predict which foods will melt and in what order.</p> <p>Measure or weight the same quantity of each and put them in small bowls in a warm oven (100°C).</p> <p>Observe the food at regular, short intervals and record in detail what happens to each.</p> <p>Remove the foods, let them cool and continue the observations. Order the foods based on which melted fastest and slowest.</p>
<h2>Knowledge</h2> <ul style="list-style-type: none"> • Some materials are insoluble: <ul style="list-style-type: none"> ○ Wax, cooking oil • Some materials are soluble: <ul style="list-style-type: none"> ○ Salt, flour, cornflour, clay, sugar • Cornflour has a special property that means it can be a liquid and a solid. It is a non-Newtonian fluid. • Some materials can be changed by squashing, bending, twisting and stretching them. This includes play dough, bread dough and plasticine. • Different materials and foods melt at different temperatures. <h2>Definitions</h2> <p>Soluble – Dissolves to mix with water.</p> <p>Insoluble – Does not dissolve and mix with water.</p>	 <p>Squashing, Bending, Twisting and Stretching</p>  <p>Squash an object by pushing both hands together.</p> <p>Bend an object by grabbing both ends of the object and bringing the ends inwards together.</p> <p>Twist an object by turning your hands in opposite directions.</p> <p>Stretch an object by pulling your hands slowly and gently apart.</p>

Medium Term Planning					
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
<ul style="list-style-type: none"> • Ask simple questions and recognise that they can be answered in different ways • Observe closely, using simple equipment • Perform simple tests • Identify and classify • Use observations and ideas to suggest answers to questions • Gather and record data to help in answering questions 		<ul style="list-style-type: none"> • Ask simple questions and recognise that they can be answered in different ways • Observe closely, using simple equipment • Perform simple tests • Identify and classify • Use observations and ideas to suggest answers to questions • Gather and record data to help in answering questions 		<ul style="list-style-type: none"> • Ask simple questions and recognise that they can be answered in different ways • Observe closely, using simple equipment • Perform simple tests • Identify and classify • Use observations and ideas to suggest answers to questions • Gather and record data to help in answering questions 	

Key Stage 1 – Year 2		Spring 2
Plants – Living Things and their Habitats	<p><u>National Curriculum objectives:</u></p> <p>Observe and describe how seeds and bulbs grow into mature plants</p> <p>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy</p> <p><u>Cross-Curricular Links:</u></p> <p><u>Mathematics:</u> Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); to the nearest appropriate unit, using rulers. Compare and order lengths and record the results using more than, less than and equals.</p> <p><u>Geography:</u> Use basic geographical vocabulary to refer to vegetation, season and weather. Use world maps, atlases and globes to identify the United Kingdom and its countries, as well as the countries, continents and oceans studied at this key stage.</p>	
Prior knowledge	Year 1 – In year 1, children learnt to identify common plants including deciduous and evergreen trees. They identified and described the basic structure of both a tree and a plant.	
Future knowledge	Year 3 – Plants – Describing the functions of the different parts of the plant. Year 5 – Reproduction in plants Year 6 – Classification of plants using classification keys. Evolution and Inheritance.	
Key Vocabulary		Investigations
Plant, stem, leaf, root, petal, seed, bulb, germinate, grow, seedling, smell, sense, touch, sight, taste, dissect, predict, observe, identify, classify, adapt, adaption, rainforest, desert, tundra, climate, conditions, habitat, species		<p><u>What do plants need to grow?</u></p> <p>Set up 4 identical plants (tomato seedlings or cress).</p> <p>Plant 1 - On the windowsill, watered regularly, inside.</p> <p>Plant 2 - In the cupboard, watered regularly, inside</p> <p>Plant 3 - On the windowsill, no water, inside</p> <p>Plant 4 - Outside, watered regularly, in soil</p> <p>Over a period of 3 weeks observe each plant - record findings in writing and with pictures.</p>
Scientific Skills		

- Ask simple questions and recognise that they can be answered in different ways
- Observe closely, using simple equipment
- Perform simple tests
- Identify and classify
- Use observations and ideas to suggest answers to questions
- Gather and record data to help in answering questions

Use the data to answer the question - what do plants need to grow?

Sunflower Race

Predict the height that your sunflower will reach.

Children then plant their own seed into pots with soil and decide where they would like their pot to go (inside, outside, full sun, partial shade)

Measure sunflowers at regular intervals and record.

Once the flowers have died, remove the seeds.

Herb Workshop

Explore a range of garden herbs using all 5 senses – talk about how they feel, smell and taste (where appropriate).

Grind herbs to release a stronger smell.

Match herbs to their medicinal uses:

Lavender – sleep

Rosemary – anti-inflammatory properties

Mint – Helps indigestion and wind!

Plant dissection

Dissect several different varieties of plant – dandelion, carnation, chrysanthemum

Find the stem, roots, leaves, petals – compare different plants

Knowledge

- Plants need water, sunlight and warm temperatures to grow and be healthy.
- If a plant has no water, the petals and leaves will wilt and they will eventually go brown, dry and crispy.
- If a plant has no sunlight it will grow taller (as it is searching for light), but it's leaves will be yellow.
- If a plant is left in a cold place it will grow very slowly or not at all.
- Plants/trees grow from bulbs and seeds.
- Different species of plants can grow in different habitats because they have adapted:
- Desert - extremely dry environments
- Adaptions - succulent flesh helps the cactus conserve water, spines helps the cactus to limit the amount of water lost, spines also protect the plant from predatory animals.
- Rainforest - extremely wet and humid conditions

Different Land Habitats



Desert



Forest



Tundra

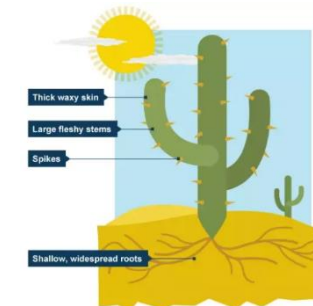


Grasslands



Rainforest

- Adaptions – Leaves have drip tips to help the rain fall quickly off the plant, grow very tall to reach the sunlight near the tree canopy, smooth bark stops other plants being able to grow up on them, large buttress roots support the very tall plants/trees, lianas have roots in the ground and are woody vines that grow up other trees towards the sunlight.
- Arctic Tundra – extremely cold conditions
- Adaptions – Plants grow close together and near to the ground to conserve warmth, flowers are produced very quickly as the summer is very short, their leaves are very small to limit the amount of water lost.



Definitions

Germination - The development of a plant from a seed.

Adaption - the process of change by which an organism or species becomes better suited to its environment.

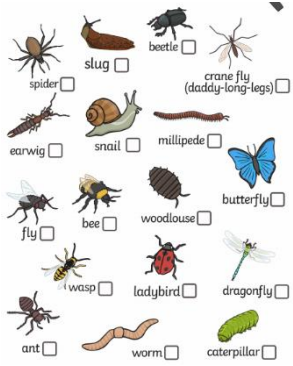
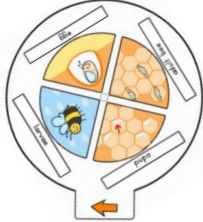
Species – A group of plants and animals that are very similar.

Succulent – Having thick, fleshy leaves or stems

Medium Term Planning

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
To observe closely using simple equipment by recording observations of a variety of plants in the local environment.	To observe and describe how seeds and bulbs grow into mature plants by planting seeds and bulbs. To perform simple tests.	To observe and describe how seeds and bulbs grow into mature plants. To use their observations and ideas to suggest answers to questions.	To find out and describe how plants need water, light and a suitable temperature to grow and stay healthy by comparing the growth of seedlings under different conditions. To gather and record data to help in answering questions by measuring the results of a comparative test.	To find out and describe how plants need water, light and a suitable temperature to grow and stay healthy by explaining what conditions plants need to grow well. To use observations and ideas to suggest answers to questions by using the results of tests to suggest good conditions for growing plants or food.	To observe and describe how seeds and bulbs grow into mature plants by comparing the growth of seeds and bulbs. To observe closely using simple equipment by measuring and recording the growth of seeds and bulbs.

Key Stage 1 – Year 2		Summer 1
Living Things and their Habitats.	<p><u>National Curriculum objectives:</u></p> <p>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</p> <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.</p> <p>Identify and name a variety of plants and animals in their habitats, including micro-habitats</p> <p>Explore and compare the differences between things that are living, dead, and things that have never been alive</p> <p><u>Cross-Curricular Links:</u></p> <p><u>PSHE:</u> Pupils should have the opportunity to learn that living things have needs and that they have responsibilities to meet them.</p> <p>Pupils should have the opportunity to learn what improves and harms their local, natural, and built environments and about some of the ways people look after them.</p> <p><u>Geography:</u> Use simple fieldwork and observational skills to study the geography of their school and its grounds and the key human and physical features of its surrounding environment.</p>	
Prior knowledge	Year 1 – Animals including humans. In year 1, children identified and named a variety of common animals and identified whether they were a carnivore, herbivore or omnivore. They also described and compared their structure.	
Future knowledge	<p>Year 4 – Food chains and Living things and their habitats.</p> <p>Year 6 - Classification</p>	
Key Vocabulary		Investigations
Minibeast, habitat, microhabitat, collect, observe, pooter, identify, classify, sort, record, offspring, adult, predator, camouflage, shelter, hide, protect, damp, dark, lifecycle, stage, egg, larvae, pupa, nectar, honey, honeycomb, conservation, endangered		<p><u>What can you find in the school grounds – observe, identify and classify</u></p> <p>Explore bushes and trees in the school grounds. Hold a white sheet under them and carefully shake.</p> <p>Use pooters and fingers to quickly collect the mini beasts.</p> <p>Observe, identify and name using a simple classification key.</p> <p>Use a tally chart to record the type and frequency.</p>

	Back in the classroom, record using a pictogram and/or block graph.
Scientific Skills	
<ul style="list-style-type: none"> • Ask simple questions and recognise that they can be answered in different ways • Observe closely, using simple equipment • Perform simple tests • Identify and classify • Use observations and ideas to suggest answers to questions • Gather and record data to help in answering questions 	
Knowledge	
<p>Identify, name and classify common UK minibeasts: bee, wasp, ladybird, crane fly (Daddy Long Legs), millipede, butterfly, slug, snail, spider, worm, caterpillar, ant</p> <p>Notice that animals including humans, have offspring that grow into adults - Match adult mini beasts to their young.</p> <p>Identify minibeast habitats:</p> <p>Caterpillars – Above and underneath leaves – This helps to protect them from predators (camouflage) and it helps them to catch their prey.</p> <p>Ants – Live underground where there are lots of insects to eat.</p> <p>Worms - Worms like to live anywhere there is soil. They like to eat dead leaf matter and need the soil to be moist. Worms help keep soil healthy as they dig tunnels that let air and water into soil and to the roots of plants.</p> <p>Spiders - Spiders are able to live just about anywhere. They do well in all types of habitats but they do have to find shelter when the weather gets colder. Their body colours help them blend in well to their surroundings. Spiders build webs to catch small insects to eat.</p> <p>Woodlice - Woodlice like dark damp places to hide during the day, such as compost heaps and woodland gardens. They are the only species of crustacean that live on land and not in the water. Woodlice can curl up into a ball to protect themselves from predators.</p> <p>Honeybees - Honey Bees like to live in areas with lots of flowering plants, such as gardens and meadows. In their natural habitats, they build nests inside holes in trees and under objects to keep them safe from predators. Humans also build beehives for them to live in – usually wooden boxes.</p> <p><u>Bees and honey</u></p> <p>Honey is made by a colony of honey bees living in a nest (in the wild) or in a hive if kept by a beekeeper.</p> <p>Foraging worker honey bees (female bees) go out to flowers to collect nectar.</p>	 

<p>Nectar is a sugar-rich liquid produced by plants and flowers and is almost 80% water with some sugar. Bees use their long, straw like tube tongues so they can suck the nectar out of the flowers and store it in their ‘honey stomach’. This is separate from the digestive system.</p> <p>On a plant the nectar is stored inside the flower head.</p> <p>The nectar mixes with an ‘enzyme’ inside the bee’s honey stomach to produce honey.</p> <p>This is deposited into hexagonal shaped honeycombs in the nest/hive.</p> <p><u>Lifecycle of the bee</u></p> <p>The Queen bee lays an egg in the honeycomb.</p> <p>After 3 days the egg hatches into a larvae. The larvae are fed royal jelly by the worker bees.</p> <p>The larvae are then fed bee bread (a mixture of honey and pollen) and the cell is sealed with a lid of wax. This is called pupa stage.</p> <p>The pupa is no longer fed but it creates a cocoon around itself. The pupa then hatches into an adult bee (this takes about 21 days from the egg being laid).</p> <p><u>Why are honeybees important to humans?</u></p> <p>Honeybee populations are declining due to use of pesticides, loss of habitats and disease.</p> <p>Pollenate flowers to produce fruits, vegetables and ultimately seeds. Less bees means less pollination which means less food.</p> <p>Animals also rely on wild plants for food and these are also pollinated by bees – Less food for cattle/sheep means less meat to eat.</p> <p>Bee conservation – What can we do to help?</p> <p>Plant your garden with bee friendly plants, buy local honey (try and get some local honey for children to try), become a beekeeper</p>	
<h2>Definitions</h2>	
<p>Conservation – Protecting plants and animals from the effects of human activity.</p>	
<p>Pollenate – The transfer of pollen from one flower to another.</p>	

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To explore and compare the differences between things that are living, dead, and things that have never been alive by thinking about life processes.	Identify and name a variety of plants and animals in their habitats including microhabitats. Sort and classify minibeasts	Identify that most living things live in habitats to which they are suited.	Describe how different habitats provide for the basic needs of different animals and plants.	Describe how animals obtain their food from plants and other animals. To use the idea of a simple food chain.	Know the life cycle of a bee