

CHERRY TREE ACADEMY

# SCIENCE



## Subject Statement

### Science



Rationale	Teaching Science is paramount as it enables children to discover and understand the world around them. Through systematic inquiry and exploration, Science fosters critical thinking and problem-solving skills essential for navigating contemporary challenges. It cultivates a sense of curiosity and empowers students to question, investigate, and draw evidence-based conclusions. Furthermore, in an increasingly technological society, scientific literacy is crucial for all children, equipping them with the knowledge and skills necessary to engage effectively in discussions about science-related issues that impact their lives and communities.
Vision for the curriculum	At Cherry Tree Academy, we provide a Science curriculum that aims to nurture children's curiosity. Through the use of enquiry questions which form part of an enquiry-based curriculum, children experience the pleasure of exploring and investigating to answer scientific questions.
Intent	<p>At the heart of our Science curriculum lies the commitment to inspire children to become confident, inquisitive scientists. We aim to cultivate an enquiring mind, enabling our pupils to explore and understand the world around them. Science offers a critical lens through which children can explain natural phenomena and make sense of everyday occurrences. Our curriculum encourages children to engage in systematic exploration by providing opportunities to formulate predictions and test their theories. Through a range of hands-on and imaginative investigations, we ensure that students learn to conduct fair tests, drawing conclusions based on tangible evidence.</p> <p>We believe that meaningful learning is not solely about acquiring knowledge but also about deepening students' understanding of their environment and the intricate workings of the universe. By fostering a sense of curiosity and encouraging critical thinking, we guide our pupils in their journey to uncover scientific principles that govern their lives.</p> <p>Ultimately, our intent is to equip children with the skills and passion necessary to navigate scientific concepts, fostering a lifelong love for inquiry and an understanding of their place within the natural world. Through this approach, we aspire to nurture the next generation of scientists and informed citizens.</p>
Implementation	At Cherry Tree Academy, our Science curriculum is designed to foster an inclusive and engaging learning environment that embodies our core values: we are considerate, we are healthy, we are resilient, we are honest, and we are inclusive. Our curriculum not only meets the full coverage of the National Curriculum and the Early Years Foundation Stage (EYFS) goals but also strategically accommodates the diverse needs of all learners, including those with Special Educational Needs and Disabilities (SEND). We are committed to embedding working scientifically skills across all year groups. Through an enquiry-based approach, children are encouraged to explore scientific concepts actively, drawing on prior learning to do this. Critical thinking and problem-solving is paramount in all lessons. Each lesson is structured to facilitate collaborative learning, where children can share ideas and perspectives, embodying our value of inclusivity. We integrate practical activities that encourage pupils to make links between their classroom learning and real life. This begins in Early Years where children gain their science knowledge as part of Knowledge and Understanding of the World. This collaborating approach not only helps to cultivate a passion for science but also promotes resilience as children navigate challenges and celebrate successes in their learning journey. Every lesson is structured to follow the CTA Way of teaching and learning. Lessons begin with an opportunity to retrieve prior knowledge; knowledge both from the current unit of learning and also from previous units taught. At Cherry Tree Academy, vocabulary is taught explicitly within each lesson and is recapped regularly. As new learning is taught, children's knowledge and understanding is assessed through the use of hinge questions and teaching is then adapted as necessary based on these. Children are informed of where each lesson's learning fits in as part of a bigger picture. Wherever possible, a cross curricular approach will be used ensuring that children are able to link their Science knowledge to knowledge from other areas of the

	<p>curriculum. By fostering a culture of honesty, we encourage children to engage in discussions about their observations, findings, and reflections. Our implementation of the Science curriculum at Cherry Tree Academy is a comprehensive endeavour that equips all children with the skills and knowledge necessary for their future educational pursuits, ensuring they thrive in a diverse and evolving world. At Cherry Tree Academy, we aim to stretch able learners, encouraging them to think more deeply in lessons. They are encouraged to use relevant vocabulary to explain ideas and phenomena. During lessons, teachers assess pupils and adapt teaching as necessary to meet the needs of learners. This is done using a range of strategies including the use of hinge questions. At the end of Key Stage Two, teachers assess pupils formally to ascertain which pupils are working at the expected standard for their age.</p>
<p>Impact</p>	<p>At Cherry Tree Academy, we are committed to ensuring that as many children as possible achieve the Age-Related Expectations (ARE) or above in Science specific to their year group. We anticipate that our curriculum will empower children to not only attain ARE or above, but also to retain and apply their scientific knowledge to new learning contexts.</p> <p>Our teaching strategies promote an environment in which children feel confident to question ideas and engage in critical thinking, thereby enabling them to explore and articulate scientific queries effectively. We emphasise the importance of scientific reasoning, encouraging pupils to explain their thought processes and conclusions with clarity and precision.</p> <p>Our integrated approach to learning aligns with relevant skills and knowledge and prepares our children for future academic pursuits and careers in science and technology. Our ultimate goal is to cultivate a generation of inquisitive and knowledgeable children who demonstrate a passion for scientific exploration and innovation.</p>
<p>Pedagogical Approach</p>	<p>All science topics and objectives are delivered through our pedagogical approach. We engage and develop working scientifically skills through enquiry-led questions. At the start of each lesson, we review previous learning from both the children's current and previous years' learning.</p> <p>Questioning is carefully planned to help children demonstrate understanding, deepen thinking, connect new material to prior learning and to challenge. Questioning allows teachers to assess whether children are ready for the next stage of learning or whether content needs to be retaught in order to ensure that it is fully embedded.</p> <p>Large concepts or ideas are split into small steps so that the working memory of our children is not overloaded. We provide ample opportunities for talk, discussion, critical thinking and curiosity. We provide scaffolds/manipulatives and resources for difficult tasks and to support those pupils with SEND. Teachers regularly check for understanding and clarity of learning and respond to the outcomes of these checks.</p>
<p>Adaptation for SEND learners</p>	<p>At Cherry Tree Academy, teachers ensure that SEND learners are provided with opportunities to access learning in classrooms. Practical and engaging activities allow SEND learners to participate in activities in hands on way that ensures children can link concepts taught to real life. Sentence stems and word banks are also provided to support SEND learners to record their learning. Teachers use their knowledge of the National Curriculum for all learners to ensure that pupils are accessing learning and activities that are appropriate to their level of need.</p>
<p>Strengths</p>	<p>At Cherry Tree Academy, all science objectives are being covered across the school as part of a broad and balanced curriculum. The Science Leader works alongside other Science Leaders across the academy trust to ensure that opportunities are provided for the sharing of good practice across school. The school's timetables ensure that there are dedicated science slots allowing children opportunities to ask questions and investigate. Children enjoy science and discuss the enjoyment of hands on practical lessons. Where appropriate, cross curricular links are encouraged to further embed knowledge in Science.</p>



# MEDIUM TERM PLAN

Cycle A







Autumn 1 & 2		
KS1	Animals Including Humans – Classification of Animals	
	Year 1	Year 2
	<p>L1: What are the different groups that animals can be classified into?                      L2: What is an amphibian?                      L3: What is a mammal?                      L4: What is a reptile?                      L5: What is a bird?                      L6: What is an insect?                      L7: What is a fish?                      L8: What are the different diets that animals can have?                      L9: What are the main parts of the human body?                      L10: What are the five senses and what do they do? (sight / hearing)                      L11: What are the five senses and what do they do? (smell / taste)                      L12: What are the five senses and what do they do? (touch)</p>	<p>L1: What are the different groups that animals can be classified into?                      L2: What is an amphibian?                      L3: What is a mammal?                      L4: What is a reptile?                      L5: What is a bird?                      L6: What is an insect?                      L7: What is a fish?                      L8: What are the different diets that animals can have?                      L9: What are the main parts of the human body?                      L10: What are the five senses and what do they do? (sight / hearing)                      L11: What are the five senses and what do they do? (smell / taste)                      L12: What are the five senses and what do they do? (touch)</p>
<b>Key Concepts to assess</b>	<p>L1: Children know that vertebrates are divided into five groups and can name these five groups. (fish, amphibians, reptiles, birds, mammals) and that insects form another group. Children can sort and classify animals into the six groups.                      L2: Children know what an amphibian is. Children can name some features of amphibians. Children can name some examples of amphibians.                      L3: Children know what a mammal is. Children can name some features of mammals. Children can name some examples of mammals.                      L4: Children know what a reptile is. Children can name some features of reptiles. Children can name some examples of reptiles.                      L5: Children know what a bird is. Children can name some features of birds. Children can name some examples of birds.                      L6: Children know what an insect is. Children can name some features of insects. Children can name some examples of insects.                      L7: Children know what a fish is. Children can name some features of fish. Children can name some examples of fish.                      L8: Children know that different animals have different diets. Children can name carnivore, herbivore and omnivore and know what each one means.                      L9: Children can identify and name and basic parts of the human body.                      L10: Children know humans have five senses and can name the body part associate with each sense. Children can explore the sense of sight and hearing.                      L11: Children know humans have five senses and can name the body part associate with each sense. Children can explore the senses of smell and taste.                      L12: Children know humans have five senses and can name the body part associate with each sense. Children can explore the senses of touch.</p>	<p>L1: Children know that vertebrates are divided into five groups and can name these five groups (fish, amphibians, reptiles, birds, mammals) and insects from another group. Children can sort and classify animals into the six groups and explain their work. Children can talk about aspects of the animals that helped them to decide how to sort them.                      L2: Children know what an amphibian is and can name the features of amphibians. Children can name some examples of amphibians and can say how they know it is an amphibian and not for example a reptile).                      L3: Children know what a mammal is and can name the features of mammals. Children can name some examples of mammals and can say how they know it is a mammal and not for example a reptile).                      L4: Children know what a reptile is and can name the features of reptiles. Children can name some examples of reptiles and can say how they know it is a reptile and not for example an amphibian).                      L5: Children know what a bird is and can name the features of birds. Children can name some examples of birds and can say how they know it is a bird and not for example a mammal).                      L6: Children know what an insect is and can name the features of insects. Children can name some examples of insects and can say how they know it is an insect and not for example a mammal).                      L7: Children know what a fish is and can name the features of fish. Children can name some examples of fish and can say how they know it is a fish and not for example a mammal).                      L8: Children know that different animals have different diets. Children can name carnivore, herbivore and omnivore and know what each one means. They can sort animals according to their diets and can recognise some features of the animals structure that gives us clues about their diet.                      L9: Children can identify, label and name and basic parts of the human body. The can say what each part is used for.                      L10: Children know humans have five senses and can name the body part associate with each sense. Children can explore the sense of sight and hearing and record what they find out in a scientific way.                      L11: Children know humans have five senses and can name the body part associate with each sense. Children can explore the senses of smell and taste and record their findings in a scientific way.                      L12: Children know humans have five senses and can name the body part associate with each sense. Children can explore the sense of touch and record their findings in a scientific way</p>



## Cherry Tree Academy Medium Term - Science

<b>Vocabulary</b>	Mammals, birds, fish, reptiles, amphibians, carnivore, omnivore, herbivore sort, classify, sense, body parts	Mammals, birds, fish, reptiles, amphibians, carnivore, omnivore, herbivore sort, classify, senses, body parts, scientific thinking, recording
<b>Experiences</b>	Outdoor work observing animals	
<b>SMSC</b>	Moral – responsibility to care of animals in the world	
<b>British Values</b>	Rule of Law – Animal rights	
<b>School Values</b>	Considerate – to animals as well as people	



Spring 1 & 2		
KS1	Animals Including Humans – Basic Needs	
	Year 1	Year 2
	<p>L1: How do animals change as they grow?                      L2: What is a life cycle? What does the life cycle of a chicken look like?                      L3: What is a life cycle? What does the life cycle of a human look like?                      L4: What do animals need in order to survive?                      L5: Why is exercise important?                      L6: Why is good hygiene important?                      L7: What is a healthy diet and why is this important?                      L8: What are the different food groups and how can they help us have a healthy diet?                      L9: What are the different food groups and how can they help us have a healthy diet?                      L10: What other ways can I keep myself healthy?</p>	<p>L1: How do animals change as they grow?                      L2: What is a life cycle? What does the life cycle of a chicken look like?                      L3: What is a life cycle? What does the life cycle of a human look like?                      L4: What do animals need in order to survive?                      L5: Why is exercise important?                      L6: Why is good hygiene important?                      L7: What is a healthy diet and why is this important?                      L8: What are the different food groups and how can they help us have a healthy diet?                      L9: What are the different food groups and how can they help us have a healthy diet?                      L10: What other ways can I keep myself healthy?</p>
<b>Key Concepts to assess</b>	<p>L1: Children know that animals can have offspring which grow into adults. Children can match adults to their young. Children can make comparisons between adults and their young.                      L2: Children know what a life cycle is. Children can sequence the life cycle of a chicken.                      L3: Children know what a life cycle is. Children can sequence the life cycle of a human.                      L4: Children can name the things that animals need in order to survive (water, food, air, shelter/warmth).                      L5: Children know what humans and other animals need in order to be healthy. Children know why exercise is important. Children can name different kinds of exercise.                      L6: Children know what humans and other animals need in order to be healthy. Children know good hygiene is important. Children can name different kinds of good hygiene.                      L7: Children know what a healthy diet consists of. Children can explain why a healthy diet is important.                      L8: Children can name the food groups. Children can talk about how the food groups and balanced meal plate can help us to have a healthy diet. Children can sort foods into the different food groups.                      L9: Children can name the food groups. Children can talk about how the food groups and balanced meal plate can help us to have a healthy diet. Children can sort foods into the different food groups.                      L10: Children understand other ways to keep themselves healthy including mental health.</p>	<p>L1: Children know that animals can have offspring which grow into adults. Children can match adults to their young including examples where this is not as obvious. Children can make comparisons between adults and their young and say what is similar and different.                      L2: Children know what a life cycle is and can explain to others. Children can sequence the life cycle of a chicken and talk about what is happening at each stage.                      L3: Children know what a life cycle is and can explain to others. Children can sequence the life cycle of a human and talk about what is happening at each stage.                      L4: Children can name the things that animals need in order to survive (water, food, air, shelter/warmth). Children can talk about what would happen if one of these things was not in place. Children can talk about needs in the context of different animals.                      L5: Children know what humans and other animals need in order to be healthy. Children know why exercise is important and can link this to humans and other animals. Children can name different kinds of exercise and express opinions. Children can talk about and observe how exercise affects them.                      L6: Children know what humans and other animals need in order to be healthy. Children know good hygiene is important and can link this to illness, germs and disease. Children can name different kinds of good hygiene.                      L7: Children know what a healthy diet consists of. Children can explain why a healthy diet is important and can explain what could happen if someone had an unhealthy diet.                      L8: Children can name the food groups and say what each food group does for our bodies. Children can talk about how the food groups and balanced meal plate can help us to have a healthy diet. Children can sort foods into the different food groups.                      L9: Children can name the food groups and say what each food group does for our bodies. Children can talk about how the food groups and balanced meal plate can help us to have a healthy diet. Children can sort foods into the different food groups.                      L10: Children understand other ways to keep themselves healthy including mental health. They can give examples of ways to look after their mental health and explain why this is important.</p>
<b>Vocabulary</b>	Needs, exercise, hygiene, nutrition, health, diet, balanced, life cycle, survival, offspring	Needs, exercise, hygiene, nutrition, health, diet, balanced, life cycle, survival, offspring, adult, growth, change, develop, balanced meal, carbohydrate, protein, fruits and veg, dairy, fats and oils, sugar,
<b>Experiences</b>		



Cherry Tree Academy Medium Term - Science

<b>SMSC</b>	
<b>British Values</b>	Mutual respect – differences in people and the way they live
<b>School Values</b>	Inclusive – different body types and backgrounds Healthy - lifestyles





Summer 1 & 2		
Living Things and their Habitats		
KS1	Year 1	Year 2
	L1: What does it mean to be living, dead or never been alive? L2: What is a habitat? Can you name some different habitats and match the animals to the correct one? L3: How are plants and animals adapted to survive in the habitat in which they live? L4: What is a micro habitat? L5: What minibeasts can be found living in our school grounds? Why do they live here? L6: Can you make a habitat for a given animal? L7: What other wildlife visits our school grounds? L8: What would be the best habitat for a woodlouse? L9: What is a food chain? L10: Can you create a food chain?	L1: What does it mean to be living, dead or never been alive? L2: What is a habitat? Can you name some different habitats and match the animals to the correct one? L3: How are plants and animals adapted to survive in the habitat in which they live? L4: What is a micro habitat? L5: What minibeasts can be found living in our school grounds? Why do they live here? L6: Can you make a habitat for a given animal? L7: What other wildlife visits our school grounds? L8: What would be the best habitat for a woodlouse? L9: What is a food chain? L10: Can you create a food chain?
<b>Key Concepts to assess</b>	L1: Children know what the terms living, dead and never lived mean. Children can sort things into living, dead and never lived. L2: Children know what a habitat is. Children can name some different habitats. Children can match animals to the correct habitat. L3: Children can explain some key features that mean the animal or plant is suited to its habitat. L4: Children know what a micro habitat is. Children can name some different micro habitats. Children can match minibeasts to the correct micro habitat. L5: Children know what a micro habitat is. Children can recognise and name some different minibeasts. Children can record observations and collect data. L6: Children can think of what an animal or minibeast needs in a habitat in order for it to live there. L7: Children can predict what wildlife might visit our school grounds. Children can make observations and record their findings. L8: With support children can plan a simple investigation. Children can make a prediction. Children can make and record observations. Children can form a conclusion. L9: Children know what a food chain is. L10: Children can use a food chain to explain what animals eat. To be able to use a food chain to explain what animals eat	L1: Children know what the terms living, dead and never lived mean. Children can sort things into living, dead and never lived and explain their reasons. L2: Children know what a habitat is and can use the definition. Children can name some different habitats and describe what they are like. Children can match animals to the correct habitat and explain their reasoning. L3: Children can explain the key features that mean the animal or plant is suited to its habitat and can explain simply why a plant or animal is suited. L4: Children know what a micro habitat is and can use the definition. Children can name some different micro habitats and describe what they are like. Children can match minibeasts to the correct habitat and explain their reasoning. L5: Children know what a micro habitat is and can use the definition. Children can recognise and name different minibeasts. Children can collect and record data. L6: Children can think about what an animal or minibeast needs in a habitat in order for it to live there. They can explain their reasoning in terms of health, adaptations and suitability. L7: Children can predict what wildlife might visit our school grounds giving reasons for their choices and linking it to their knowledge of habitats. Children can record and present data and observations in different ways. L8: Children can plan a simple investigation and ask questions. Children can make a prediction giving a reason to back it up. Children can make and record observations. Children can form a conclusion. L9: Children know and can explain what a food chain is. They can use the correct vocabulary when talking about food chains. L10: Children can use a food chain to show what different animals eat.
<b>Vocabulary</b>	Habitat, shelter, warmth, space, food chain, forest, grassland, micro habitat, natural, environment, suitable	Habitat, shelter, warmth, space, food chain, forest, grassland, micro habitat, natural, environment, suitable, adaptation, producer, consumer



## Cherry Tree Academy Medium Term - Science

<b>Experiences</b>	Visit to a different habitat e.g. pond dipping
<b>SMSC</b>	Moral – responsibility to care for habitats and animals living in them.
<b>British Values</b>	
<b>School Values</b>	Considerate – to the school grounds and the world as a whole. Healthy – to role the natural world plays in positive mental and physical health.



Autumn 1		
LKS2	Rocks	
	Year 3	Year 4
	<p>L1: Can I name and compare the three different types of rocks?                      L2: Can I classify rocks according to their features?                      L3: Can I explain how a fossil is formed?                      L4: Can I explain what a palaeontologist does and why Mary Anning's discoveries were important?                      L5: Can I explain what soil is made from and how it is formed?</p>	<p>L1: Can I name and compare the three different types of rocks?                      L2: Can I classify rocks according to their features?                      L3: Can I explain how a fossil is formed?                      L4: Can I explain what a palaeontologist does and why Mary Anning's discoveries were important?                      L5: Can I explain what soil is made from and how it is formed?</p>
<b>Key Concepts to assess</b>	<p>L1: Children will compare different types of rocks based on their appearance in the context of understanding the difference between natural and human-made rocks.                      L2: Children will group rocks based on their physical properties.                      L3: Children will explain to process of fossilization.                      L4: Children will describe Mary Anning's contributions to palaeontology.                      L5: Children will observe soils. Children will explain the process of soil formation.</p>	<p>L1: Children will compare different types of rocks based on their appearance and explain the difference between natural and human-made rocks.                      L2: Children will decide how to group rocks based on their physical properties.                      L3: Children will explain to process of fossilization and compare fossils to the animals that they belong to.                      L4: Children will describe Mary Anning's contributions to palaeontology and explain how palaeontology has changed our understanding of prehistoric animals.                      L5: Children will observe similarities and differences between different soils. Children will explain the process of soil formation.</p>
<b>Vocabulary</b>	<p>Rocks, igneous, sedimentary, metamorphic, form, formation, volcano, sea, seabed, changes, compare, types, natural, human-made, strata, anthropic, group, classify, properties, hard, soft, durable, buoyancy, fossil, sedimentary, fossilization, animals, bones, chemical fossils, body fossils, trace fossils, layers, pressure, coprolite, trackways, Mary Anning, ichthyosaur, dinosaurs, Jurassic, Lyme Regis, scientists, William Buckland, paleontology, observe, soil, organic matter, animals, top soil, sub soil, bedrock, additions, losses, translocations, transformations.</p>	<p>Rocks, igneous, sedimentary, metamorphic, form, formation, volcano, sea, seabed, changes, compare, types, natural, human-made, strata, anthropic, group, classify, properties, hard, soft, durable, buoyancy, permeable, impermeable, fossil, sedimentary, fossilization, animals, bones, chemical fossils, body fossils, trace fossils, layers, pressure, coprolite, compare, Mary Anning, ichthyosaur, dinosaurs, Jurassic, Lyme Regis, scientists, William Buckland, prehistoric, palaeontology, observe, similarities, differences, soil, organic matter, animals, top soil, sub soil, bedrock, additions, losses, translocations, transformations.</p>
<b>Experiences</b>	Trip to Mam Tor	
<b>SMSC</b>		
<b>British Values</b>		
<b>School Values</b>	<p>Considerate of animals in soils, rocks and at the coast.                      Health-hygiene and hand washing after handling and observing rocks and soils.</p>	



Autumn 2		
LKS2	Light	
	Year 3	Year 4
	L1: Can I identify a range of light sources? L2: Can I explain reflection and identify reflective objects? L3: Can I use a mirror to reflect light onto different objects? L4: Can I investigate which materials block light to form shadows? L5: Can I observe patterns in the way that shadows change size?	L1: Can I identify a range of light sources? L2: Can I explain reflection and identify reflective objects? L3: Can I use a mirror to reflect light onto different objects? L4: Can I investigate which materials block light to form shadows? L5: Can I observe patterns in the way that shadows change size?
<b>Key Concepts to assess</b>	L1: Children will explain that we need light to see things and that dark is the absence of light. Children will identify man-made and natural light sources. L2: Children will investigate which surfaces reflect light. L3: Children will know what the image in a mirror is reversed. They will use a mirror to reflect light onto different objects. L4: Children will test how shadows are formed when the light from a light source is blocked by a solid object. They will investigate the best material to use for curtains for a baby's bedroom. L5: Children will find patterns in the way that the size of shadows change, by investigating what happens when you change the distance between the object and the light source.	L1: Children will explain that we need light to see things and that dark is the absence of light. Children will identify man-made and natural light sources and explain why the moon, a mirror and a window are not light sources. L2: Children will investigate which surfaces reflect light and select the most reflective material for a purpose. L3: Children will know what the image in a mirror is reversed. They will use a mirror to reflect light onto different objects and explain to most effective angle in which to position the mirror for doing so. L4: Children will plan and set up an investigation to test how shadows are formed when the light from a light source is blocked by a solid object. They will investigate the best material to use for curtains for a baby's bedroom. L5: Children will find patterns in the way that the size of shadows change, by investigating what happens when you change the distance between the object and the light source. Children will explain the patterns that they find.
<b>Vocabulary</b>	light, source, dark, man-made, natural, reflect, see, illuminate, visible, predict, test, mirror, smooth, shiny, rays, rough, scatter, reverse, beam energy, travel, straight, opaque, translucent, transparent, block, shadow, observe, pattern, size, distance, change.	light, source, dark, man-made, natural, reflect, reflective, see, illuminate, visible, predict, test, mirror, smooth, shiny, rays, rough, scatter, reverse, beam, angle, position, effective, energy, travel, straight, opaque, translucent, transparent, block, shadow, plan, observe, pattern, size, distance, change.
<b>Experiences</b>		
<b>SMSC</b>		
<b>British Values</b>		
<b>School Values</b>		



Spring 1		
LKS2	Electricity	
	Year 3	Year 4
	<p>L1: Can I identify common appliances that run on electricity?                      L2: Can I classify common appliances according to whether they are mains or battery powered?                      L3: Can I identify circuit components and build a working circuit?                      L4: Can I draw a labelled diagram of a circuit?                      L5: Can I predict whether a circuit will work? Can I identify circuits as incomplete or complete?</p>	<p>L1: Can I identify common appliances that run on electricity?                      L2: Can I classify common appliances according to whether they are mains or battery powered?                      L3: Can I identify circuit components and build a working circuit?                      L4: Can I draw a labelled diagram of a circuit?                      L5: Can I predict whether a circuit will work? Can I identify circuits as incomplete or complete?</p>
<b>Key Concepts to assess</b>	<p>L1: Children will identify and name household electrical appliances.                      L2: Children will sort pictures of electrical appliances according to whether they are mains or battery powered.                      L3: Children will identify and name the different components in a circuit and build a circuit that works.                      L4: Children will construct a simple series electrical circuit and record by drawing and labelling a diagram.                      L5: Children will use given diagrams to predict whether a circuit will work. They will build it to test it and describe it as complete or incomplete. Children will discuss what they have observed and found out.</p>	<p>L1: Children will identify and name household electrical appliances and classify objects according to them being electrical and non-electrical on a Venn diagram.                      L2: Children will sort pictures of electrical appliances according to whether they are mains or battery powered on a Venn diagram, placing objects that can be both in the middle.                      L3: Children will identify and name the different components in a circuit and build a circuit that works. Children will observe what happens to bulb brightness when more cells are added.                      L4: Children will construct a simple series electrical circuit and record by drawing and labelling a diagram. Children will write simple instructions about how to construct a circuit safely.                      L5: Children will use given diagrams to predict whether a circuit will work. Children build a series circuit for their partner to examine that is either incomplete or complete. Children will identify incomplete and complete circuits and explain how to make an incomplete circuit complete.</p>
<b>Vocabulary</b>	Appliance, mains, battery, electricity, powered, device, sort, classify, circuit, series circuit, bulb, wire, buzzer, switch, cell, battery, component, diagram, complete circuit, incomplete circuit, conductor.	Appliance, mains, battery, electricity, powered, device, sort, classify, Venn diagram circuit, series circuit, bulb, wire, buzzer, switch, cell, battery, component, diagram, brightness, safety complete circuit, incomplete circuit, conductor.
<b>Experiences</b>	Building circuits.	
<b>SMSC</b>		
<b>British Values</b>		
<b>School Values</b>		



Spring 2		
LKS2	Electricity	
	Year 3	Year 4
	L1: Can I identify conductors and insulators of electricity? L2: Can I explain what a switch is and the job it does in a circuit? L3: Can I make a switch? L4: Can I discuss and solve problems about electricity? L5: Can I explain the dangers of electricity?	L1: Can I identify conductors and insulators of electricity? L2: Can I explain what a switch is and the job it does in a circuit? L3: Can I make a switch? L4: Can I discuss and solve problems about electricity? L5: Can I explain the dangers of electricity?
<b>Key Concepts to assess</b>	L1: Children will make predictions about which materials conduct electricity, test, observe and record results. Children will explain how they have carried out a fair test by changing one variable. L2: Children will try adding a switch into the simple series circuit (bulb, wire and cell) they used in previous lessons. Children will explain that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. L3: Children will use folded card and foil to make a switch and add into a simple circuit they used in previous lessons. L4: Children will apply their knowledge of electricity to answer why plastic is used to cover plugs, light switches and plug sockets. L5: Children will make a poster to promote electrical safety in the home.	L1: Children will plan and set up an investigation to predict, test, observe and record which materials conduct electricity. Children will explain how they have carried out a fair test by changing one variable. L2: Children will research different types of switch, add a switch to a circuit and explain that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. L3: Children will use folded card and foil to make a switch and add into a simple circuit they used in previous lessons. Children will draw a diagram, showing how the switch opens and closes the circuit. L4: Children will apply their knowledge of electricity to answer why a circuit completed with a plastic-coated paper clip will not work. L5: Children will make a poster to promote electrical safety in the home and at school.
<b>Vocabulary</b>	Electricity, cell, bulb, battery, circuit, complete, incomplete, conductor, insulator, material, object, equipment, prediction, results, conclusion, fair, variable, metal, wood, plastic, fabric, switch, complete circuit, incomplete circuit, closed, open, on, off, danger, fire, electrocute, water, pylons.	Electricity, cell, bulb, battery, circuit, complete, incomplete, conductor, insulator, material, object, equipment, prediction, results, conclusion, fair, variable, metal, wood, plastic, fabric, plan switch, complete circuit, incomplete circuit, closed, open, on, off, slide switch, toggle switch, selector switch, push button switch danger, fire, electrocute, water, pylons.
<b>Experiences</b>	Trip to Eureka.	
<b>SMSC</b>		
<b>British Values</b>	Rule of law-safety in school and the workplace.	
<b>School Values</b>		





Cherry Tree Academy Medium Term - Science

Summer 1				
LKS2	Sound			
	<table border="1"> <thead> <tr> <th>Year 3</th> <th>Year 4</th> </tr> </thead> <tbody> <tr> <td>                     L1: Can I explain how sound sources vibrate, creating sound?                      L2: Can I explain how sounds travel to our ears?                      L3: Can I observe and describe patterns between the pitch of a sound and features of the object that made the sound?                      L4: Can I explain how sound can be affected by distance?                      L5: Can I investigate the best material for absorbing sound?                 </td> <td>                     L1: Can I explain how sound sources vibrate, creating sound?                      L2: Can I explain how sounds travel to our ears?                      L3: Can I observe and describe patterns between the pitch of a sound and features of the object that made the sound?                      L4: Can I explain how sound can be affected by distance?                      L5: Can I investigate the best material for absorbing sound?                 </td> </tr> </tbody> </table>	Year 3	Year 4	L1: Can I explain how sound sources vibrate, creating sound? L2: Can I explain how sounds travel to our ears? L3: Can I observe and describe patterns between the pitch of a sound and features of the object that made the sound? L4: Can I explain how sound can be affected by distance? L5: Can I investigate the best material for absorbing sound?
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<b>Experiences</b>	Making and testing string telephones. Make sound proof ear defenders.			
<b>SMSC</b>				
<b>British Values</b>	Rule of law-noise pollution			
<b>School Values</b>	Considerate-noise pollution			



Summer 2		
LKS2	Living things and their habitat	
	Year 3	Year 4
	L1: Can I group living things in a variety of ways? L2: Can I generate questions to use in a classification key? L3: Can I hunt for invertebrates and use a classification key to answer questions to identify and name what I find? L4: Can I recognise positive and negative changes to the local environment? L5: Can I describe environmental dangers to endangered species?	L1: Can I group living things in a variety of ways? L2: Can I generate questions to use in a classification key? L3: Can I hunt for invertebrates and use a classification key to answer questions to identify and name what I find? L4: Can I recognise positive and negative changes to the local environment? L5: Can I describe environmental dangers to endangered species?
<b>Key Concepts to assess</b>	L1: Children will sort living things according to given criteria on a Venn and Carroll diagram. L2: Children will explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment by generating 3 questions to sort vertebrates in a classification key. L3: Children will find invertebrates in the local environment. After carefully examining their invertebrate, children will identify the invertebrate by answering questions on a classification key. Children will draw a labelled diagram and describe the characteristics that they have used in identification. L4: Children will identify dangers to wildlife in the local environment and suggest how humans can have a positive effect on the local environment. L5: Children will name some endangered species and describe how changes to the environment have affected them. Children will research an endangered species and write a report including information gathered.	L1: Children will generate criteria and sort living things accordingly on a Venn and Carroll diagram. L2: Children will explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment by generating 4 questions to sort vertebrates in a classification key. L3: Children will find invertebrates in the local environment. After carefully examining their invertebrate, children will identify the invertebrate by answering questions on a classification key. Children will draw a labelled diagram and describe the characteristics that they have used in identification. Children will compare two invertebrates. L4: Children will identify dangers to wildlife in the local environment and suggest how humans can have a positive effect on the local environment. Children will write an explanation of how their suggestion will help protect local living things. L5: Children will name some endangered species and describe how changes to the environment have affected them. Children will research an endangered species and write and present a report including information gathered. Children will suggest ideas of how we can contribute to the conservation of endangered species.
<b>Vocabulary</b>	Living things, organism, sort, group, criteria, Venn diagram, Carroll diagram, classification key, yes/no question, variation, classification, vertebrates, invertebrates, similarities, differences, local environment, specimen, thorax, abdomen, antenna, segmented, wing case, mandible, proboscis, prolegs, diagram, label, characteristics, habitat, wildlife, change, danger, vulnerable, threat, positive, negative, protect, endangered, extinct, research, report.	Living things, organism, sort, group, <b>generate</b> , criteria, Venn diagram, Carroll diagram, classification key, yes/no question, variation, classification, vertebrates, invertebrates, similarities, differences, local environment, specimen, thorax, abdomen, antenna, segmented, wing case, mandible, proboscis, prolegs, diagram, label, characteristics, <b>compare</b> , habitat, wildlife, change, danger, vulnerable, threat, positive, negative, protect, <b>explanation</b> endangered, extinct, <b>conservation</b> , research, report, <b>presentation</b> .
<b>Experiences</b>	Go on an invertebrate hunt in the local environment.	
<b>SMSC</b>	Moral-caring for living things by handling them carefully with correct equipment and placing them back where they were found. Discuss poaching and deforestation.	
<b>British Values</b>	Rule of law-animal cruelty.	
<b>School Values</b>		



Autumn 1		
UKS2	Forces	
	Year 5	Year 6
	L1: What is a force and how do they work? L2: What is Gravity and how can it be measured? L3: What is air resistance and how does it happen? L4: What is air resistance and how does it happen? L5: How do everyday Objects use forces? L6: Who is John McAdam and is he involved in the development of suitable road surfaces?	L1: What is a force and how do they work? L2: What is Gravity and how can it be measured? L3: What is air resistance and how does it happen? L4: What is air resistance and how does it happen? L5: How do everyday Objects use forces? L6: Who is John McAdam and is he involved in the development of suitable road surfaces?
<b>Key Concepts to assess</b>	L1: Children will know that for some forces to act, there must be contact, but some forces can also act at a distance. L2: Children will be able to demonstrate the effect of gravity acting on an unsupported object. L3: Children can give examples of air resistance and when it is beneficial to have high or low air resistance. L4: Children can give examples of water resistance and when it is beneficial to have high or low water resistance. L5: Children will demonstrate how pulleys, levers and gears work. L6: Children to know about the life and work of John McAdam and use this to create an investigation to investigate surface friction.	L1: Children will know that for some forces to act, there must be contact, but some forces can also act at a distance giving examples for each. L2: Children will be able to demonstrate the effect of gravity acting on an unsupported object and know this is measured in NM. L3: Children can give examples of air resistance and when it is beneficial to have high or low air resistance as well as explain that the quicker an object moves the more particles it will collide with. L4: Children can give examples of water resistance and when it is beneficial to have high or low water resistance and explain which shapes will have high or low resistance and why. L5: Children will demonstrate how pulleys, levers and gears work including how the placement of the fulcrum point effects this. L6: Children to know about the life and work of John McAdam and use this to create an investigation to investigate surface friction, explaining the type to forces involved (contact force).
<b>Vocabulary</b>	long arm, load pivots effort lever Pulley, axel gear, machines water resistance particles Air resistance Newton Meter Sir Isaac Newton Gravity mass, John McAdam surface friction	long arm, fulcrum, load pivots effort lever Pulley, fixed axel, free axle, gear, machines water resistance particles Air resistance Newton Meter Sir Isaac Newton Gravity mass, John McAdam, surface friction, exert, mass



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<b>Experiences</b>	<p><b>Scientific Enquiry</b> – create a timer that uses gravity to move a ball- research how the work of scientists such as Isaac Newton helped to develop the theory of gravitation.</p> <p><b>Scientific Enquiry</b> – - investigate the effects of air resistance using parachutes ... explain the results of my investigations in terms of the force, showing a good understanding that as the object tries to move through the air, the air resistance slows it down</p> <p><b>Scientific Enquiry</b> – investigate the effects of water resistance in a range of contexts e.g. dropping shapes through water and pulling shapes, such as boats, along the surface of water ...explain the results of our investigations in terms of the force, showing a good understanding that as the object tries to move through the water or across the surface the particles in the water or on the surface slow it down.</p> <p><b>Scientific Enquiry</b> – explore how levers, pulleys and gears work and make a product that involves a lever, pulley or gear. ... demonstrate clearly the effects of using levers, pulleys and gears.</p>
<b>SMSC</b>	<p>Cause and effect- To show an understanding of the consequences of their behaviour and actions.</p> <p>Social – working with other pupils when completing experiments</p> <p>Culture – understanding the importance of Isaac Newton’s role in developing the principles of modern physics</p>
<b>British Values</b>	<p>Mutual respect and tolerance – through listening to others' opinions when working with materials</p>
<b>School Values</b>	<p>Resilience- discuss the force placed on us when things are difficult and the reaction to this force, we need to achieve what we want.</p>



Autumn 2		
Properties and Changes of Materials		
UKS2	Year 5	Year 6
	<p>L1: What different states of matter are there, and can they change?                      L2: Can solids and liquids interact?                      L3: Are all changes permanent?                      L4: Are all materials the same?                      L5: Can crystals be made?                      L6: Can we influence the process of change?</p>	<p>L1: What different states of matter are there, and can they change?                      L2: Can solids and liquids interact?                      L3: Are all changes permanent?                      L4: Are all materials the same?                      L5: Can crystals be made?                      L6: Can we influence the process of change?</p>
<b>Key Concepts to assess</b>	<p>L1: Children will know the three states of matter and that in the case of water they can change through temperature change.                      L2: Children will know that in some solid materials the bonds between particles break when surrounded by a liquid allowing the liquid to 'absorb' the solid; when this happens, the solid is called a solute, the liquid is called a solvent and the result is a solution and that when a solid does dissolve in a liquid it is described as being soluble in that solvent.                      L3: Children will know that a reversible change is one where the object can be reversed back to their original state as no chemical reaction has taken place while an irreversible change is one that cannot be reversed and that examples of this often involves a chemical change where a new material is made                      L4: Children will know that materials' different properties can be tested through acting upon them, including testing to find whether materials are magnetic, thermally or electrically conductive                      L5: Children will know that filtering allows solids and liquids to be separated and that sieving allows solids of different sizes to be separated                      L6: Children investigate to know how the temperature of water affects how well sugar dissolves in it.</p>	<p>L1: Children will know the three states of matter and that in the case of water they can change through temperature change and the effect this has on their molecules                      L2: Children will know that in some solid materials the bonds between particles break when surrounded by a liquid allowing the liquid to 'absorb' the solid; when this happens, the solid is called a solute, the liquid is called a solvent and the result is a solution and that when a solid does dissolve in a liquid it is described as being soluble in that solvent. They will also know the amount a solvent can be finite before it becomes saturated.                      L3: Children will know that a reversible change is one where the object can be reversed back to their original state as no chemical reaction has taken place while an irreversible change is one that cannot be reversed and that examples of this often involves a chemical change where a new material is made giving examples (e.g. burning, boiling an egg, the reaction of bicarbonate of soda and acid)                      L4: Children will know that materials' different properties can be tested through acting upon them, including testing to find whether materials are magnetic, thermally or electrically conductive and suggest how these properties make them suitable for certain purposes.                      L5: Children will know that filtering allows solids and liquids to be separated and that sieving allows solids of different sizes to be separated and give examples of when to use which type of separation.                      L6: Children investigate to know how the temperature of water affects how well sugar dissolves in it and understand the effect the temperature had on the molecules in the water.</p>



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<b>Vocabulary</b>	Evaporation, melting, materials, conductor insulator solution particles solute soluble solvent dissolve insoluble saturated crystals reversible filtering irreversible sieving electricity thermally magnetic	Evaporation, melting, materials, conductor insulator solution Particles solute soluble solvent dissolve insoluble Saturated crystals reversible filtering Irreversible sieving electricity thermally Magnetic Molecules bicarbonate of soda Acid Alkaline separation
<b>Experiences</b>	Scientific Enquiry – Observing Over Time - investigate making crystals Scientific Enquiry – Comparative & Fair Testing – investigate materials that will keep hot porridge hot and frozen yoghurt cold. Scientific Enquiry – Comparative & Fair Test – investigate which materials can best be used to filter solids out of water. Scientific Enquiry – Comparative & Fair Testing – investigate how the temperature of water affects how well sugar dissolves in it	
<b>SMSC</b>	Moral- homeless people need the most thermally insulated materials to keep warm- should these be free to them?	
<b>British Values</b>	Mutal respect- listen to and evaluate other predictions respectfully.	
<b>School Values</b>	Inclusive- ensure all members of a team are included in the enquiry sessions.	





Spring		
UKS2	Earth and Space	
	Year 5	Year 6
	<p>L1: How long does it take for the Earth and other planets to orbit the Sun?                      L2: What are the names of the planets in the Solar System and where are they?                      L3: Why is the moon always there?                      L4: Why does the moon change                      L5: Why is it dark at night?                      L6: Were we right when we first learned about our solar system?</p>	<p>L1: How long does it take for the Earth and other planets to orbit the Sun?                      L2: What are the names of the planets in the Solar System and where are they?                      L3: Why is the moon always there?                      L4: Why does the moon change                      L5: Why is it dark at night?                      L6: Were we right when we first learned about our solar system?</p>
<p><b>Key Concepts to assess</b></p> <p>L1: Children will know that the Earth and other planets move in circular paths called orbits due to the sun's gravitational pull and that one year is the amount of time it takes for a planet to orbit the Sun once. (for the Earth it is 365½ days.)                      L2: Children will know that there are eight planets in the Solar System: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune and the order of the planets, according to their distance from the Sun.                       L3: Children will know that a moon is a satellite that does not produce its own light and a planet's gravitational pull keeps the moon travelling in a circular shape around the planet.                       L4: Children will know that as the Moon travels around the Earth, we can only see the part of the Moon facing the Sun at that time and therefore its appearance will change depending on where we are viewing the moon from.                       L5: Children will know that Earth is constantly spinning on its axis, and it takes 24-hours for the Earth to completely spin creating night and day.                       L6: Children will know that Ptolemy was an Ancient Egyptian astronomer who was one of the first people to describe the model of the Solar System</p>	<p>L1: Children will know that the Earth and other planets move in circular paths called orbits due to the sun's gravitational pull, that one year is the amount of time it takes for a planet to orbit the Sun once. (for the Earth it is 365½ days.) and that planets in our Solar System are far away from each other, so their orbits never cross over.                       L2: Children will know that there are eight planets in the Solar System: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune and the order of the planets, according to their distance from the Sun and that the four planets furthest away from the Sun are known as the gas giants.                       L3: Children will know that a moon is a satellite that does not produce its own light, a planet's gravitational pull keeps the moon travelling in a circular shape around the planet and takes just over 27 days for the Moon to orbit the Earth.                      L4: Children will know that as the Moon travels around the Earth, we can only see the part of the Moon facing the Sun at that time and therefore its appearance will change depending on where we are viewing the moon from as well as the names for these phases of the moon.                      L5: Children will know that Earth is constantly spinning on its axis, it takes 24-hours for the Earth to completely spin creating night and day, and this means that all the countries cannot have the same time.                       L6: Children will know that Ptolemy was an Ancient Egyptian astronomer who was one of the first people to describe the model of the Solar System and he believed the Earth was at the centre of the Solar System and that the Sun and other planets orbited around the Earth. This is called the geocentric model of the Solar System</p>	



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<p><b>Vocabulary</b></p>	<p>Astronomer, Ptolemy, astronomer, Ptolemy, geocentric elliptical path, orbits, gravity, gravitational pull, Satellites Axis, reflects</p>	<p>Astronomer, Ptolemy, astronomer, Ptolemy, Geocentric Orbits, elliptical path, gravity, gravitational pull, Satellites Axis, time zone, reflects geocentric, -Day 1: New Moon -Day 4: Waxing Crescent, -Day 7: First Quarter, -Day 10: Waxing Gibbous -Day 14: Full Moon, -Day 18: Waning Gibbous -Day 21: Last Quarter -Day 24: Waning Crescent -Day 28: New Moon</p>
<p><b>Experiences</b></p>	<p><b>Scientific Enquiry – Observing Over Time</b> – create a shadow investigation to see what happens to the shadow at different times of the day. <b>Scientific Enquiry – Identifying &amp; Classifying / Research</b> – create a model to show the movement of the Sun, Moon and Earth within the Solar System</p> <p>Immersive Planetarium - Wonder dome</p>	
<p><b>SMSC</b></p>	<p>Spiritual- respectfully discuss the different theories on how the world began.</p>	
<p><b>British Values</b></p>	<p>Mutual respect and tolerance – discuss the differing views on the moon landings.</p>	
<p><b>School Values</b></p>	<p>Resilient- how astronomers must be resilient when facing challenges and setbacks- link to Armstrong and the broken button.</p>	



Summer 1		
Living things and their Habitats- Classification		
UKS2	Year 5	Year 6
	<p>L1: Why is the classification of plants and animals useful?</p> <p>L2: Why is Carl Linnaeus’s work famous?</p> <p>L3: Do all animals that fit into the same group have the same characteristics?</p> <p>L4: What are microorganisms, and can they help or harm us?</p> <p>L5: Can micro-organisms be classified in the same way as plants and animals?</p> <p>L6: How do conditions affect the growth of micro-organisms?</p>	<p>L1: Why is the classification of plants and animals useful?</p> <p>L2: Why is Carl Linnaeus’s work famous?</p> <p>L3: Do all animals that fit into the same group have the same characteristics?</p> <p>L4: What are microorganisms, and can they help or harm us?</p> <p>L5: Can micro-organisms be classified in the same way as plants and animals?</p> <p>L6: How do conditions affect the growth of micro-organisms?</p>
<b>Key Concepts to assess</b>	<p>L1: Know that scientists collected a huge number of plants and animals to arrange and classify them and why.</p> <p>L2: Know that in the Linnaean system, living things are classified and levels: domain, kingdom, phylum, class, order, family, genus, species</p> <p>L3: Know that there are 6 kingdoms which include animals, plants, fungi and bacteria.</p> <p>L4: Know that a microorganism is a very small living thing that can only be seen with a microscope. Give examples of those that can help- penicillin and those that can harm- viruses.</p> <p>L5: Know that microorganisms can be classified in various ways- number of cells, helpful or harmful.</p> <p>L6: Know that microorganisms reproduce more rapidly in the correct conditions.</p>	<p>L1: Know that scientists collected a huge number of plants and animals to arrange and classify them and how this has helped modern scientific discoveries.</p> <p>L2: Know that in the Linnaean system, living things are classified and levels: domain, kingdom, phylum, class, order, family, genus, species and how this has helped scientists understand new species that are discovered.</p> <p>L3: Know that there are 6 kingdoms which include animals, plants, fungi and bacteria and the characteristics that define these.</p> <p>L4: Know that a microorganism is a very small living thing that can only be seen with a microscope. Give examples of those that can help- penicillin and those that can harm- viruses as well as those that can be both- fungi.</p> <p>L5: Know that microorganisms can be classified in various ways- number of cells, helpful or harmful. Know that bacteria are a single-celled organism which can multiply and either help humans (such as in the stomach) or harm them (such as causing infection)</p> <p>L6: Know that microorganisms reproduce more rapidly in the correct conditions and which conditions prevent their growth.</p>
<b>Vocabulary</b>	<p>Observation, group, classify, classification, Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, micro-organism, bacteria, fungus, virus, cell, nucleus</p> <p>Linnaean system,: domain, kingdom, phylum, class, order, family, genus, species microorganism, yeast</p>	<p>Observation, group, classify, classification, Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, micro-organism, bacteria, fungus, virus, cell, nucleus, microorganisms</p> <p>Linnaean system: domain, kingdom, phylum, class, order, family, genus, species, mould, yeast, archaea, eukarya bacteria</p>
<b>Experiences</b>	<p><b>Scientific Enquiry</b> In which conditions do microorganisms grow most rapidly? [<i>note: experiment includes growing microorganisms through cultivating mould on bread. Please ensure that relevant precautions are taken to keep all safe</i>]</p> <p><b>Scientific Enquiry</b> Does temperature affect the growth rate of microorganisms? (Yeast experiment)</p>	



Cherry Tree Academy Medium Term - Science

<b>SMSC</b>	Social – working with other pupils when completing experiments
<b>British Values</b>	Mutual respect- listening to and understanding the opinions of others when planning and predicting an investigation.
<b>School Values</b>	Healthy- we keep ourselves healthy by using good hygiene routines to kill bacteria.



Summer 2		
UKS2	Famous Inventors	
	Year 5	Year 6
	L1: Who was Stephen Hawking and what was his impact? L2: What is a Black hole and how are they made? L3: Can bacteria be good for us? L4: What is the impact of penicillin today? L5: Who was Steve Jobs and how have his inventions changed the world? L6: What power is in the finger?	L1: Who was Stephen Hawking and what was his impact? L2: What is a Black hole and how are they made? L3: Can bacteria be good for us? L4: What is the impact of penicillin today? L5: Who was Steve Jobs and how have his inventions changed the world? L6: What power is in the finger?
<b>Key Concepts to assess</b>	L1: Children will be able to share facts about Stephen Hawking's life. L2: Children will plan and set up an inquiry to demonstrate the causes of black holes. L3: Children will be able to describe Fleming's discovery of penicillin. L4: Children will be able to construct a scatter graph from a table of results L5: Children will understand how Steve Jobs used electronics to design computers. L6: Children will know how Steve Jobs was obsessed with the power of manipulating devices with one finger and use recognised symbols to represent some components used to make computers.	L1: Children will be able to share facts about Stephen Hawking's life and the impact his disability may have had positively or negatively. L2: Children will plan and set up an inquiry to demonstrate the causes of black holes and interpret and share their findings. L3: Children will be able to describe Fleming's discovery of penicillin and how wile beneficial it is still a dangerous drug. L4: Children will be able to construct a scatter graph from a table of results and answer questions about the effects of penicillin using my scatter graph. L5: Children will understand how Steve Jobs used electronics to design computers and explain the impact of his inventions. L6: Children will know how Steve Jobs was obsessed with the power of manipulating devices with one finger and use recognised symbols to represent some components used to make computer and build a simple circuit.
<b>Vocabulary</b>	Stephen Hawking, astrophysicist, black hole, gravity, density, light, event horizon, matter, Alexander Fleming, penicillin, antibiotic, microorganism, bacteria, , colony/ colonies, Steve Jobs, technology, computer, Apple, component, circuit	Stephen Hawking, astrophysicist, black hole, gravity, density, light, event horizon, matter, amyotrophic lateral sclerosis (ALS), also known as motor neurone disease (MND). Alexander Fleming, penicillin, antibiotic, microorganism, bacteria, correlations, colony/ colonies, diameter, exposed Steve Jobs, technology, computer, Apple, component, circuit
<b>Experiences</b>	Scientific enquiry: What makes a black hole and how are they formed?	
<b>SMSC</b>	Social- explore the positive and negative impact of the invention of modern technologies.	
<b>British Values</b>	Individual liberty- despite his deteriorating health Stephen Hawking was able to change the world as he wanted due to and our equalities act enabling him to attend university- this is not the case in all countries.	
<b>School Values</b>	Inclusion- disabilities don't prevent brilliance.	



# MEDIUM TERM PLAN

Cycle B







Autumn 1 & 2

<b>KS1</b>	Seasonal Changes Plants – Basic Structure of Flowering Plants	
	<b>Year 1</b>	<b>Year 2</b>
	L1: Can you work scientifically to make sensible predictions and careful observations? L2: Can you plant a seed and explain how this is done? L3: Can you name the parts of a plant? L4: What is the function of the parts of a plant? Can you work scientifically to find out about the parts of a flower? L5: What are the parts of a tree? Can you identify them in trees growing in the school grounds? L6: What are the names of some wild and garden plants? L7: What are the four seasons and what months make up each season? L8: What can you find out about the changes that happen in Autumn time? L9: What trees grow in the local environment and are they evergreen or deciduous? L10: Can you observe plants in the local environment? Can you sort leaves in different ways? L11: Which parts of a plant can be eaten? L12: Can you work scientifically to find out more about the role of the stem?	L1: Can you work scientifically to make sensible predictions and careful observations? L2: Can you plant a seed and explain how this is done? L3: Can you name the parts of a plant? L4: What is the function of the parts of a plant? Can you work scientifically to find out about the parts of a flower? L5: What are the parts of a tree? Can you identify them in trees growing in the school grounds? L6: What are the names of some wild and garden plants? L7: What are the four seasons and what months make up each season? L8: What can you find out about the changes that happen in Autumn time? L9: What trees grow in the local environment and are they evergreen or deciduous? L10: Can you observe plants in the local environment? Can you sort leaves in different ways? L11: Which parts of a plant can be eaten? L12: Can you work scientifically to find out more about the role of the stem?



## Cherry Tree Academy Medium Term - Science

<p><b>Key Concepts to assess</b></p>	<p>L1: Children can use a magnifying glass to observe carefully. Children can record their observations. Children can make a prediction. Children can record their findings.            L2: Children know that plants grow from seeds. Children know that seeds can look different. Children can follow instructions to plant a seed.            L3: Children can name the main parts of a flowering plant.            L4: Children can explain the function of the main parts of a plant. Children can use simple tools safely. Children can make observations.            L5: Children can identify and name the parts of a tree. Children can find these parts in trees within the school grounds.            L6: Children know the difference between a wild and a garden plant. Children can name a few wild plants. Children can name a few garden plants.            L7: Children know the names of the four seasons. Children can place the seasons in order. Children can match each month to the correct season.            L8: Children know that in Autumn the leaves of many trees change colour and start to fall. Children know that the temperature grows colder. Children know that animals prepare for the months ahead.            L9: Children know that deciduous trees shed their leaves in winter to conserve energy. Children know that evergreen trees keep their leaves throughout the year. Children can name some evergreen and deciduous trees.            L10: Children can name some common wild flowers. Children can make and record observations. Children can sort and classify with some support.            L11: Children can identify the different parts of a plant in foods we eat. Children can name some different plants we eat and identify what part they are eating.            L12: With support children can plan a simple investigation. With support children can make predictions, observations and measurements. With support children can record their work.</p>	<p>L1: Children can use a magnifying glass to observe carefully. Children can record their observations accurately. Children can make a prediction giving a reason to back up their idea. Children can record their findings in different ways.            L2: Children know that plants grow from seeds. Children know that seeds can look different and can identify some different seeds. Children can follow instructions to plant a seed and explain each step to someone else.            L3: Children can name the main parts of a flowering plant. Children can recognise and name these parts on a range of different plants.            L4: Children can explain the function of the main parts of a plant. Children can use simple tools safely. Children can make accurate observations and talk about their findings.            L5: Children can identify and name the parts of a tree and explain the function of these parts. Children can identify these parts on trees growing within the school grounds.            L6: Children know the difference between a wild and a garden plant. Children can name some wild plants. Children can name some garden plants.            L7: Children know the names and order of the four seasons. Children can match each month to the correct season.            L8: Children know that in Autumn the leaves of many trees change colour and start to fall. Children know that plants stop making food and animals prepare for the months ahead. Children can name some animals that prepare for hibernation. Children know that the temperature grows colder and the daylight hours get shorter.            L9: Children know that deciduous trees shed their leaves in winter to conserve energy. Children know that evergreen trees keep their leaves throughout the year. Children can identify evergreen and deciduous trees and name some of each.            L10: Children can name some common wild flowers. Children can make and record observations. Children can sort and classify in different ways and explain their thinking.            L11: Children can name some different plants we eat and identify what part they are eating. Children can sort and classify plants in different ways and explain their thinking.            L12: Children can plan and carry out a simple investigation. Children can make predictions, observations and measurements. Children can record their work.</p>
<p><b>Vocabulary</b></p>	<p>Season, changes, weather, Plant, growth, stem, leaf, petal, seed, bulb</p>	<p>Season, changes, weather, Plant, growth, stem, leaf, petal, seed, bulb, deciduous, evergreen, function, role, growth, change,</p>
<p><b>Experiences</b></p>	<p>Plant and tree hunts            Season walk</p>	
<p><b>SMSC</b></p>		
<p><b>British Values</b></p>		
<p><b>School Values</b></p>	<p>Consideration – for the environment, Healthy – plants we eat</p>	



Spring 1 / Spring 2		
KS1	Materials – Classification	
	Seasonal Changes (ongoing) including how plants grow and change through the seasons	
	Year 1	Year 2
L1: What is it like during the season of winter?	L1: What is it like during the season of winter?	L1: What is it like during the season of winter?
L2: What is it like during the season of winter?	L2: What is it like during the season of winter?	L2: What is it like during the season of winter?
L3: What is an object and what is a material?	L3: What is an object and what is a material?	L3: What is an object and what is a material?
L4: Can you group and classify materials in different ways?	L4: Can you group and classify materials in different ways?	L4: Can you group and classify materials in different ways?
L5: What are natural and made materials?	L5: What are natural and made materials?	L5: What are natural and made materials?
L6: Can you describe the properties of some materials?	L6: Can you describe the properties of some materials?	L6: Can you describe the properties of some materials?
L7: Which material would be most suitable to build a boat?	L7: Which material would be most suitable to build a boat?	L7: Which material would be most suitable to build a boat?
L8: Which material would be most suitable to make an umbrella?	L8: Which material would be most suitable to make an umbrella?	L8: Which material would be most suitable to make an umbrella?
L9: What is it like during the season of spring?	L9: What is it like during the season of spring?	L9: What is it like during the season of spring?
L10: What is it like during the season of spring?	L10: What is it like during the season of spring?	L10: What is it like during the season of spring?



## Cherry Tree Academy Medium Term - Science

<p><b>Key Concepts to assess</b></p>	<p>L1: Children know that there are four seasons and they know the order of the seasons. Children know that winter is usually the coldest time of the year and can include freezing temperatures and snow. Children can make first hand observations of winter time.</p> <p>L2: Children know that in winter the daylight hours are the shortest. With support children can make measurements including temperature.</p> <p>L3: Children know that objects are things we can see or touch and can be made from one or more materials. Children know that a material is the matter from which a thing is or can be made from.</p> <p>L4: Children can name some common materials (water, wood, rock, plastic, metal, glass, brick, paper, fabric). Children know materials can be grouped in different ways. With some support children can group and classify materials.</p> <p>L5: Children know a natural material is any product that comes from plants, animals or the ground. Children can name some natural materials (water, wood, rock, cotton). Children know man-made materials are materials that have been produced by man. Children can name some man-made materials (metal, glass, paper, fabric).</p> <p>L6: Children know different material have different properties. Children can name different properties (hard/soft, stretchy/stiff, shiny/dull, rough/smooth, flexible/rigid, waterproof/not waterproof, absorbent/not absorbent, opaque/transparent)</p> <p>L7: Children know different materials have different properties. Children can think about how the properties of a material might make it suitable for a specific purpose. With support children can plan and carry out an investigation to test an idea.</p> <p>L8: Children know different materials have different properties. Children can think about how the properties of a material might make it suitable for a specific purpose. With support children can plan and carry out an investigation to test an idea</p> <p>L9: Children know that there are four seasons and they know the order of the seasons. Children can recognise and name some of the changes that occur in spring including how the weather and length of the day changes.</p> <p>L10: Children know that there are four seasons and they know the order of the seasons. Children can make first hand observations of spring.</p>	<p>L1: Children know that there are four seasons, they know the order of the seasons and can match the months of the year to each season. Children know that winter in usually the coldest time of the year and can include freezing temperatures and snow. Children can make and record first hand observations of winter time.</p> <p>L2: Children can compare the season of winter with autumn. Children know that the daylight hours are shortest in the season of winter. Children can make measurements as part of making observations about winter.</p> <p>L3: Children know that objects are things we can see or touch and can be made from one or more materials. Children know that a material is the matter from which a thing is or can be made from. Children can distinguish between objects and materials in and around the classroom.</p> <p>L4: Children can name some common materials (water, wood, rock, cotton, leather, plastic, metal, glass, brick, paper, fabric, foil, rubber). Children know that everything is made up of materials. Children can group and classify materials in different ways.</p> <p>L5: Children know a natural material is any product that comes from plants, animals or the ground. Children can name some natural materials (water, wood, rock, cotton, iron, oil, leather). Children know man-made materials are materials that have been produced by man. Children can name some man-made materials (metal, glass, paper, fabric, foil).</p> <p>L6: Children know different material have different properties. Children can name different properties (hard/soft, stretchy/stiff, shiny/dull, rough/smooth, flexible/rigid, waterproof/not waterproof, absorbent/not absorbent, opaque/transparent). Children can sort and classify materials according to their properties. Children can explain why a material may or may not be suitable for a given purpose based on its properties.</p> <p>L7: Children know different materials have different properties. Children can think about how the properties of a material might make it suitable for a specific purpose. Children can plan and carry out an investigation to test an idea.</p> <p>L8: Children know different materials have different properties. Children can think about how the properties of a material might make it suitable for a specific purpose. Children can plan and carry out an investigation to test an idea.</p> <p>L9: Children know that there are four seasons, they know the order of the seasons and can match the months of the year to each season. Children can recognise and name some of the changes that occur in spring including the length of the day and the temperature and can compare this it other seasons they have found out about.</p> <p>L10: Children know that there are four seasons, they know the order of the seasons and can match the months of the year to each season. Children can make measurements as part of making first hand observations of spring.</p>
<p><b>Vocabulary</b></p>	<p>Sort, classify, material, metal, glass, fabric, wood, properties, adjectives to describe, Season, month, changes, spring</p>	<p>Sort, classify, material, natural, made, properties, adjectives to describe Season, month, changes, spring</p>
<p><b>Experiences</b></p>	<p>Season walk</p>	
<p><b>SMSC</b></p>		
<p><b>British Values</b></p>		
<p><b>School Values</b></p>		



Summer 1		
KS1	Materials - Uses	
	Year 1	Year 2
	<p>L1: What are natural and made materials?                      L2: How are different materials used?                      L3: How are different materials used in the local area?                      L4: What makes a material useful for a particular job?                      L5: How can the shapes of some materials be changed?                      L6: What changes occur in the season of Summer?</p>	<p>L1: What are natural and made materials?                      L2: How are different materials used?                      L3: How are different materials used in the local area?                      L4: What makes a material useful for a particular job?                      L5: How can the shapes of some materials be changed?                      L6: What changes occur in the season of Summer?</p>
<b>Key Concepts to assess</b>	<p>L1: Children know a natural material is any product that comes from plants, animals or the ground. Children can name some natural materials (water, wood, rock, cotton). Children know man-made materials are materials that have been produced by man. Children can name some man-made materials (metal, glass, paper, fabric).                      L2: Children recognise that the same object can be made using different materials. Children know that materials are using in different ways.                      L3: Children can identify different materials in the local area. With support children can identify a reason why a particular material has been used for a particular purpose.                      L4: Children know that the properties of a material can make is better or worse of particular purposes. Children can identify the same object made from different materials.                      L5: Children know the shapes of some objects can be changed by squashing, bending, twisting or stretching.                      L6: Children know that there are four seasons and they know the order of the seasons. Children know that summer is usually the hottest time of the year. Children can make first hand observations of summer time.</p>	<p>L1: Children know a natural material is any product that comes from plants, animals or the ground. Children can name some natural materials (water, wood, rock, cotton, iron, oil, leather). Children know man-made materials are materials that have been produced by man. Children can name some man-made materials (metal, glass, paper, fabric, foil).                      L2: Children know that the same object can be made using different materials. Children know that materials are used in different ways. Children can explain why or why not a specific material is suitable for a given job.                      L3: Children can identify different materials in the local area. Children can say why different materials have been chosen for different purposes.                      L4: Children know that materials are picked for a specific purpose because of their properties. Children know the same object can be made using different materials.                      L5: Children know the shapes of some objects can be changed by squashing, bending, twisting or stretching. Children are beginning to understand that some changes are reversible and some are not.                      L6: Children know that there are four seasons, they know the order of the seasons and can match the months of the year to each season. Children know that summer is usually the hottest time of the year. Children can make and record first hand observations of summer time</p>
<b>Vocabulary</b>	Similarities, differences, use, waterproof, absorbent, transparent, opaque, purpose, squash, bend, twist, stretch	Similarities, differences, use, waterproof, absorbent, transparent, opaque, purpose, everyday materials, suitability, properties, squash, bend, twist, stretch, change
<b>Experiences</b>	Season walk	
<b>SMSC</b>		
<b>British Values</b>		
<b>School Values</b>		



Summer 2		
KS1	Plants – What a Plant Needs Seasonal Changes (Ongoing)	
	Year 1	Year 2
	L1: What changes occur in the season of summer? L2: What do seeds need to germinate? L3: What is inside a seed or a bulb? L4: Can you name different seeds and bulbs? Can you plan an investigation? L5: What do plants need in order to be healthy? L6: How do plants grow and change?	L1: What changes occur in the season of summer? L2: What do seeds need to germinate? L3: What is inside a seed or a bulb? L4: Can you name different seeds and bulbs? Can you plan an investigation? L5: What do plants need in order to be healthy? L6: How do plants grow and change?
Key Concepts to assess	L1: Children know that in summer the daylight hours are the longest. With support children can make measurements including temperature. L2: Children can plant a seed. Children know that most seeds need warmth and water to germinate. L3: Children know that bulbs and seeds have a store of food inside them. L4: Children can recognise and name some seeds and bulbs. L5: Children know that plants need water, light and warmth to stay healthy. L6: Children know about the stages of a plant life cycle.	L1: Children can compare the season of summer with the other seasons. Children know that the daylight hours are longest in the season of summer. Children can make measurements as part of making observations about summer. L2: Children can plant a seed and describe the process. Children know that seeds need warmth and water to germinate but not light. L3: Children know that bulbs and seeds have a store of food inside them. Children can label the inside of a seed. L4: Children can recognize and name a growing number of seeds and bulbs. Children can compare and sort seeds and bulbs in different ways. L5: Children know that plants need water, light and warmth to stay healthy. Children can describe some of the things that will happen to a plant when one of these requirements is missing. L6: Children know about the stages of a plant life cycle. Children can explain what is happening in each stage.
Vocabulary	Water, sunlight, nutrients, seeds, bulbs, germinate, warmth, grow, change	Seeds, bulbs, germinate, light, temperature, growth, healthy, water, store, warmth, life cycle, change, nutrients
Experiences	Growing seeds Season walk	
SMSC		
British Values		
School Values	Consideration – for the environment	





Autumn 1		
LKS2	Forces and magnets.	
	Year 3	Year 4
	<p>L1: What evidence shows that most forces require direct contact between two objects to act?</p> <p>L2: How does the surface of a material affect how objects move across it?</p> <p>L3: How can magnets move objects without touching them, and how do they attract or repel?</p> <p>L4: What are magnetic poles, and how can we predict whether magnets will attract or repel each other?</p> <p>L5: Which materials are magnetic, and how can we identify them through observation?</p>	<p>L1: What evidence shows that most forces require direct contact between two objects to act?</p> <p>L2: How does the surface of a material affect how objects move across it?</p> <p>L3: How can magnets move objects without touching them, and how do they attract or repel?</p> <p>L4: What are magnetic poles, and how can we predict whether magnets will attract or repel each other?</p> <p>L5: Which materials are magnetic, and how can we identify them through observation?</p>
<b>Key Concepts to assess</b>	<p>L1: Children know that a push or pull force is necessary when opening a door, pushing a swing, pushing a light switch.</p> <p>L2: Children will test and observe how well a pull back car moves down a ramp covered in different surfaces (no cover, sand paper, bubble wrap, artificial grass) Children to know that friction slows a moving object.</p> <p>L3: Children will use a range of different magnets (bar, ring, button, horseshoe) to observe how they act towards each other without direct contact. Children will then compare and group a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials.</p> <p>L4: Children will know that magnets have a north and south pole. They will predict which poles will attract and repel each other.</p> <p>L5: Children will investigate which materials are magnetic.</p>	<p>L1: Children know that a push or pull force is necessary when opening a door, pushing a swing, pushing a light switch. Children describe the force on bicycle pedals and explain the effect on the chain and wheels.</p> <p>L2: Children will measure and record data to show how far the car travelled on each surface.</p> <p>L3: Children will use a range of different magnets to observe which is the strongest. They will observe how they act towards each other without direct contact from a given distance. Children will then compare and group a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials.</p> <p>L4: Children will know that magnets have a north and south pole. They will predict which poles will attract and repel each other. Children will investigate whether the strength and size of the magnet affects the relationship between the poles.</p> <p>L5: Children will plan their own investigate to find out which metals are magnetic.</p>
<b>Vocabulary</b>	Forces, contact, push, pull, friction, test, observe, magnet, bar, button, horseshoe, ring, poles, north, south, attract, repel, predict, investigate, magnetic, non-magnetic.	Forces, contact, push, pull, <b>cause, effect</b> , friction, test, observe, measure, <b>meters, centimetres, data</b> , magnet, bar, button, horseshoe, ring, <b>distance</b> , poles, north, south, attract, repel, predict, <b>strength</b> , investigate, magnetic, <b>metals, iron, nickel, cobalt</b> , non-magnetic.
<b>Experiences</b>	Children will investigate a range of materials that are magnetic and non-magnetic.	
<b>SMSC</b>	Children develop curiosity and wonder about the physical world, learning to ask questions, test ideas, and reflect on discoveries through hands-on exploration.	
<b>British Values</b>	Pupils learn to work scientifically with fairness and respect for evidence, understanding that scientific knowledge is built through observation, enquiry and rational discussion.	
<b>School Values</b>	Resilient – Children demonstrate resilience when investigations don't go as expected and they learn to adapt and try again. Considerate – Pupils collaborate during experiments, taking turns and listening to each other's ideas and findings respectfully.	



Autumn 2		
LKS2	States of Matter	
	Year 3	Year 4
	<p>L1: What are the properties of solids, liquids and gases, and how do their particles behave?</p> <p>L2: How can we observe and explain the properties of gases?</p> <p>L3: What happens when materials change state, and how can we investigate this?</p> <p>L4: How does water change between states, and what affects how quickly it evaporates?</p> <p>L5: What are the different stages of the water cycle, and how do they link to changes of state?</p>	<p>L1: What are the properties of solids, liquids and gases, and how do their particles behave?</p> <p>L2: How can we observe and explain the properties of gases?</p> <p>L3: What happens when materials change state, and how can we investigate this?</p> <p>L4: How does water change between states, and what affects how quickly it evaporates?</p> <p>L5: What are the different stages of the water cycle, and how do they link to changes of state?</p>
<b>Key Concepts to assess</b>	<p>L1: Children know that solids hold their shape, liquids take on the shape of the container they are in and gases escape from an unsealed container. Children will group together and compare materials according to whether they are solids, liquids or gases.</p> <p>L2: Children will investigate the weight of drinks with and without carbon dioxide.</p> <p>L3: Children will observe that chocolate changes state when heated and cooled. Children will measure the temperature at which this happens in degrees Celsius.</p> <p>L4: Children will observe a liquid change to a gas through the process of evaporation. Children will observe how a gas changes to liquid through condensation.</p> <p>L5: Children will identify the stages of the water cycle and explain the part played by evaporation and condensation and associate the rate of evaporation with temperature.</p>	<p>L1: Children know that solids hold their shape, liquids take on the shape of the container they are in and gases escape from an unsealed container. Children know that the particles in a solid are compact and a gas is spread out. Children will group together and compare materials according to whether they are solids, liquids or gases.</p> <p>L2: Children will plan to and investigate the weight of drinks with and without carbon dioxide. Children will record date.</p> <p>L3: Children will observe that chocolate changes state when heated and cooled. Children will measure the temperature that this happens in degrees Celsius.</p> <p>L4: Children will observe a liquid change to a gas through the process of evaporation. Children will observe how a gas changes to liquid through condensation.</p> <p>L5: Children will identify the stages of the water cycle and explain the part played by evaporation and condensation and associate the rate of evaporation with temperature.</p>
<b>Vocabulary</b>	Solid, liquid, gas, compact, spread, particles, carbon dioxide, predict, test, observe, weight, observe, heat, cool, melt, change state, evaporation, water cycle.	Solid, liquid, gas, compact, spread, particles, <b>group, compare</b> carbon dioxide, predict, test, observe, weight, <b>plan, record, data</b> , observe, heat, cool, melt, change state, <b>measure, temperature, degrees Celsius</b> evaporation, <b>condensation</b> , water cycle, <b>rate</b> .
<b>Experiences</b>	Melting and cooling chocolate investigation. Evaporation experiment.	
<b>SMSC</b>	Children develop awe and respect for the natural world through exploring how matter behaves and changes, encouraging curiosity, questioning, and thoughtful reflection on scientific processes.	
<b>British Values</b>	Children practise individual liberty by exploring their own scientific predictions and working with respect for the rule of evidence, developing responsibility in collaborative investigations.	
<b>School Values</b>	Resilient – Pupils persevere through practical investigations and develop confidence in explaining changing states, even when results are unexpected. Healthy – Children learn how the water cycle and evaporation relate to real-life health and hygiene, deepening understanding of everyday science.	



Spring 1		
LKS2	Animals including humans-skeletons, muscles and nutrition.	
	Year 3	Year 4
	<p>L1: How can we identify and sort animals with and without skeletons?                      L2: What are vertebrates and invertebrates, and how are they different?                      L3: What are the three types of skeletons, and how can animals be grouped by them?                      L4: What bones make up the human skeleton, and how can we label them?                      L5: How does the human skeleton support movement?</p>	<p>L1: How can we identify and sort animals with and without skeletons?                      L2: What are vertebrates and invertebrates, and how are they different?                      L3: What are the three types of skeletons, and how can animals be grouped by them?                      L4: What bones make up the human skeleton, and how can we label them?                      L5: How does the human skeleton support movement?</p>
<b>Key Concepts to assess</b>	<p>L1: Children will identify                      L2: Children will identify and group animals as vertebrates and invertebrates.                      L4: Children will name human bones such as the skull, spine, femur, ribcage, pelvis, tibia and label them on a diagram.                      L5: Children will explain that humans have a skeleton for support, movement and protection. Children will investigate whether having a longer femur bone makes humans jump further. Children will measure their femur and how far they can jump from a standing position.</p>	<p>L1:                      L2: Children will identify and group animals as vertebrates and invertebrates. They will observe and compare how vertebrates and invertebrates move.                      L4: Children will name human bones such as the skull, spine, femur, ribcage, pelvis, tibia, scapula, radius, fibula, humerus and label them on a diagram.                      L5: Children will explain that humans have a skeleton for support, movement and protection. Children will investigate whether having a longer femur bone makes humans jump further. Children will measure their femur and how far they can jump from a standing position. Children will draw conclusions from the data that they collect.</p>
<b>Vocabulary</b>	Vertebrate, invertebrate, skeleton, human, skull, spine, femur, ribcage, pelvis, tibia, label, diagram, support, movement, protection, distance, length, centimetres, metres,	Vertebrate, invertebrate, <b>compare</b> , skeleton, human, skull, spine, femur, ribcage, pelvis, tibia, <b>scapula, radius, fibula, humerus</b> , label, diagram, support, movement, protection, distance, length, centimetres, metres, <b>conclusion</b> .
<b>Experiences</b>	Investigating links between femur length and how far a person can jump.	
<b>SMSC</b>	Children reflect on the complexity and design of living things, developing awe and curiosity about the human body and the natural world. They also consider how animals have adapted different structures for movement and survival.	
<b>British Values</b>	Children learn to value evidence and fair testing when exploring how skeletons function, developing respect for scientific thinking and working collaboratively with peers in a democratic learning environment.	
<b>School Values</b>	Healthy- planning a nutritious meal. Understanding the importance of exercise. Resilient – Pupils show determination when building understanding of new scientific concepts, such as joints and bones, and apply this knowledge in practical ways. Considerate – Children work respectfully with others during group tasks, listening to and valuing each other’s ideas and observations.	



Spring 2		
Animals including humans-skeletons, muscles and nutrition.		
LKS2	Year 3	Year 4
	<p>L1: How do bones and muscles work together to help us move?</p> <p>L2: Why is nutrition important, and how do different food groups help our bodies?</p> <p>L3: How can foods be sorted into their correct food groups?</p> <p>L4: How do human diets vary, and what makes a diet balanced?</p> <p>L5: How are the diets of animals similar to or different from our own?</p>	<p>L1: How do bones and muscles work together to help us move?</p> <p>L2: Why is nutrition important, and how do different food groups help our bodies?</p> <p>L3: How can foods be sorted into their correct food groups?</p> <p>L4: How do human diets vary, and what makes a diet balanced?</p> <p>L5: How are the diets of animals similar to or different from our own?</p>
<b>Key Concepts to assess</b>	<p>L1: Children will explain how muscles expand and contract and work together with bones to create movement.</p> <p>L2: Children will explain that animals cannot make their own food. They will learn that humans need the right amounts of foods from different food groups to get the right amount of nutrients.</p> <p>L3: Children will sort foods into food groups and plan a nutritious meal.</p> <p>L4: Children to match a nutritious meal suitable for an athlete, and a growing child.</p> <p>L5: Children to group animals, including their pets, according to what they eat.</p>	<p>L1: Children will explain how muscles expand and contract and work together with bones and ligaments to create movement.</p> <p>L2: Children will explain that animals cannot make their own food. They will learn that humans need the right amounts of foods from different food groups to get the right amount of nutrients.</p> <p>L3: Children will sort foods into food groups and plan a nutritious meal. Children will explain the functions of each food group.</p> <p>L4: Children to plan a nutritious meal suitable for an athlete, and a growing child.</p> <p>L5: Children to decide different ways to group animals, including their pets, according to what they eat.</p>
<b>Vocabulary</b>	Bones, muscles, expand, contract, food, nutrients, nutrition, carbohydrates, protein, fat and sugar, dairy, fruit and vegetables, sort, classify, food groups.	Bones, muscles, expand, contract, <b>ligaments</b> food, nutrients, nutrition, carbohydrates, protein, fat and sugar, dairy, fruit and vegetables, <b>function, energy, fibre, growth, repair, calcium</b> , sort, classify, food groups.
<b>Experiences</b>		
<b>SMSC</b>	Children explore how the body functions and how diet and exercise impact health and wellbeing, encouraging them to make thoughtful and informed lifestyle choices.	
<b>British Values</b>	Children develop respect for different cultural diets and traditions, understanding that a balanced diet can look different around the world while still supporting health.	
<b>School Values</b>	<p>Healthy – Pupils learn how nutrition and exercise keep the body working well and are encouraged to reflect on their own choices.</p> <p>Resilient – Children think critically about how to improve their own health through small, consistent changes, showing commitment to lifelong learning and well-being.</p>	



Summer 1		
LKS2	Plants	
	Year 3	Year 4
	L1: What are the different parts of a flowering plant and what do they do? L2: What do plants need to live and grow, and how do these needs vary? L3: How do different factors affect how well plants grow? L4: How is water transported through a plant? L5: What role do flowers play in the life cycle of a plant?	L1: What are the different parts of a flowering plant and what do they do? L2: What do plants need to live and grow, and how do these needs vary? L3: How do different factors affect how well plants grow? L4: How is water transported through a plant? L5: What role do flowers play in the life cycle of a plant?
<b>Key Concepts to assess</b>	L1: Children will name and label the parts of a variety of plants, including trees. They will explain the function of each part of a plant. L2: Children will explain why a plant needs light, water, nutrients and space to grow. They will learn that some plants need more water or light than others. L3: Children will compare the effect of amount of light and amount of fertilizer on plant growth. Children will observe and record changes to growth over time. L4: Children will cut white carnations and observe coloured water travel up the stem to the flowers. L5: Children will explain how new seeds germinate through seed dispersal. They will know that some seeds are carried by wind, water and animals to a place where they can germinate. Children will know that seeds in fruit are eaten by birds, which are then left behind in the bird's waste.	L1: Children will name and label the parts of a variety of plants, including trees. They will explain the function of each part of a plant. Children will know that plants can make their own food. L2: Children will explain why a plant needs light, water, nutrients and space to grow. They will compare the needs of three different plants. L3: Children will compare the effect of amount of light and amount of fertilizer on plant growth. Children will observe, measure and record changes to growth over time. L4: Children will cut white carnations and observe coloured water travel up the stem to the flowers. L5: Children will explain how new seeds germinate through seed dispersal. They will know that some seeds are carried by wind, water and animals to a place where they can germinate. Children will know that seeds in fruit are eaten by birds, which are then left behind in the bird's waste. Children will explain reasons why some seeds may not germinate e.g. not landing in an ideal place after being carried on an animal's fur.
<b>Vocabulary</b>	Flowering plants, functions, root, stem, trunk, leaves, flowers, support, nutrition, reproduction, food, air, light, water, nutrients, space, compare, growth, fertilizer, observe, changes, carnations, reproduce, seeds, germinate, dispersal, wind, water, animals.	Flowering plants, functions, root, stem, trunk, leaves, flowers, support, nutrition, reproduction, <b>sunlight, water</b> , food, air, light, water, nutrients, space, <b>compare</b> , growth, fertilizer, observe, changes, <b>measure</b> , carnations, reproduce, seeds, germinate, dispersal, wind, water, animals.
<b>Experiences</b>	Growing plants	
<b>SMSC</b>	Moral- effects of climate change on plant reproductions-decreasing numbers of bees.	
<b>British Values</b>	Individual Liberty- values around climate action and pledges.	
<b>School Values</b>	Considerate – Understanding the needs of plants teaches children to be thoughtful stewards of nature. Healthy – Learning how plants grow helps children make better choices about food, gardening, and outdoor wellbeing.	



Summer 2		
Animals including humans-digestive system		
LKS2	Year 3	Year 4
	<p>L1: How can we keep our teeth clean and healthy?</p> <p>L2: What are the different types of human teeth and what is each one used for?</p> <p>L3: What are the main parts of the human digestive system and what do they do?</p> <p>L4: How does food travel through the digestive system?</p> <p>L5: How do food chains show the relationship between producers, predators, and prey?</p> <p>L6: How can we use teeth to identify whether an animal is a carnivore, herbivore, or omnivore?</p>	<p>L1: How can we keep our teeth clean and healthy?</p> <p>L2: What are the different types of human teeth and what is each one used for?</p> <p>L3: What are the main parts of the human digestive system and what do they do?</p> <p>L4: How does food travel through the digestive system?</p> <p>L5: How do food chains show the relationship between producers, predators, and prey?</p> <p>L6: How can we use teeth to identify whether an animal is a carnivore, herbivore, or omnivore?</p>
<b>Key Concepts to assess</b>	<p>L1: Children will observe the effects of different drinks on tooth enamel represented by an egg. Children will record the results of their observations.</p> <p>L2: Children will identify and name incisors, canines and molars and learn their function.</p> <p>L3: Children will identify and name mouth, tongue, teeth, oesophagus, stomach, intestine and anus and learn their function when digesting food.</p> <p>L4: Children will carry out a demonstration to show how food is digested and associate everyday objects represented as parts of the digestive system.</p> <p>L5: Children will interpret a variety of food chains and identify the producer, predator and prey.</p> <p>L6: Children will observe the similarities and differences between animal teeth that are herbivores, carnivores and omnivores. Children will suggest reasons for the differences.</p>	<p>L1: Children will plan a comparative test to observe the effects of different drinks on tooth enamel represented by an egg. Children will record the results of their observations.</p> <p>L2: Children will identify and name incisors, canines, premolars and molars and learn their function.</p> <p>L3: Children will identify and name mouth, tongue, teeth, oesophagus, stomach, pancreas, small intestine, large intestine, rectum and anus and learn their function when digesting food.</p> <p>L4: Children will carry out a demonstration to show how food is digested and associate everyday objects represented as parts of the digestive system. Children will explain the process of digestion.</p> <p>L5: Children will interpret and construct a variety of food chains and identify the producer, predator and prey.</p> <p>L6: Children will observe the similarities and differences between animal teeth that are herbivores, carnivores and omnivores. Children will suggest reasons for the differences. Children will suggest reasons why animal teeth become damaged.</p>
<b>Vocabulary</b>	Enamel, tooth decay, acid, fizzy drinks, observe, record, teeth, incisors, canines, molars, digestive system, mouth, tongue, teeth, oesophagus, stomach, intestine, anus, demonstrate, process, representation, food chain, producer, predator, prey, compare, similar, different, herbivore, carnivore, omnivore.	Enamel, tooth decay, acid, fizzy drinks, observe, record, <b>plan, comparative, variables, fair,</b> teeth, incisors, canines, <b>premolars,</b> molars, digestive system, mouth, tongue, teeth, oesophagus, stomach, <b>pancreas, small intestine, large intestine, rectum,</b> anus, demonstrate, process, representation, <b>explain,</b> food chain, producer, predator, prey, <b>construct,</b> compare, similar, different, herbivore, carnivore, omnivore, <b>damage.</b>
<b>Experiences</b>	School visit to Eureka Children’s Museum- Chew to poo workshop. Investigating the effect of different drinks on tooth enamel.	
<b>SMSC</b>	Exploring human health and the food chain encourages children to reflect on healthy lifestyles and our place in the natural world.	



## Cherry Tree Academy Medium Term - Science

<b>British Values</b>	Understanding the human body and its needs promotes respect for science and the importance of informed decision-making about personal health and the environment.
<b>School Values</b>	Healthy – Children learn how diet, hygiene, and food chains contribute to wellbeing. Resilient – Children consider how bodies protect themselves and adapt to stay healthy.



Autumn 1		
UKS2	Electricity	
	Year 5	Year 6
	<p>L1: How does electricity really work?                      L2: What does a circuit look like?                      L3: How can we measure electricity?                      L4: Can I influence the effectiveness of a circuit?                      L5: Can a lemon really act as a battery?                      L6: What are good conductors and insulators?</p>	<p>L1: How does electricity really work?                      L2: What does a circuit look like?                      L3: How can we measure electricity?                      L4: Can I influence the effectiveness of a circuit?                      L5: Can a lemon really act as a battery?                      L6: What are good conductors and insulators?</p>
Key Concepts to assess	<p>L1: Children will know that electrical current is the flow of charged particles called electrons around a circuit and that conductors have free electrons.                      L2: Children will know that electrical circuits can be represented by simple diagrams including the recognised symbols for a battery, bulb, motor, buzzer and wire.                      L3: Children will know that voltage is what we use to measure of the power of a cell to produce electricity and that as the number and voltage of cells in a circuit increases, the brightness of a bulb or the volume of a buzzer will increase                      L4: Children will know the reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.                      L5: Children will know that the acid within a citrus fruit can produce a small electrical current that can in large enough volume power a circuit.                      L6: Children will know that conductors and insulators either allow electricity to flow or block the flow. Children understand the dangers of electricity.</p>	<p>L1: Children will know that electrical current is the flow of charged particles called electrons around a circuit that conductors have free electrons and that a chemical reaction inside a cell produces the charged particles that can flow around a circuit.                      L2: Children will know that electrical circuits can be represented by simple diagrams including the recognised symbols for a battery, bulb, motor, buzzer and wire and know that these items should be arranged in a specific way for a circuit to work including being a complete circuit                      L3: Know that voltage is what we use to measure of the power of a cell to produce electricity, that this is measure of the 'push' of electric current and that as the number and voltage of cells in a circuit increases, the brightness of a bulb or the volume of a buzzer will increase                      L4: L4: Children will know the reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.                      L5: Children will know that the acid within a citrus fruit can produce a small electrical current that can in large enough volume power a circuit and can produce a circuit diagram to represent this. Children understand the dangers of electricity.                      L6: C Children will know that conductors and insulators either allow electricity to flow or block the flow and that some metals are more conductive than others.</p>
Vocabulary	<p>electric current series circuit parallel circuit Symbol Diagram Flow, Complete Circuit, symbol, cell, current, incomplete, voltage, resistance, electrons, power, conductor, insulator</p>	<p>electric current series circuit parallel circuit Symbol Diagram Flow, Complete Circuit, symbol, cell, current, incomplete, voltage, resistance, electrons, power, conductor, insulator, charged particle, specific function, advantageous uses.</p>





## Cherry Tree Academy Medium Term - Science

Experiences	Scientific Enquiry – Pattern Seeking – investigate how the number of cells in a circuit affects the bulbs brightness... construct a range of circuits with different numbers of cells to test Scientific Enquiry – Pattern Seeking – investigate how the number of bulbs in a circuit affect the bulbs brightness... construct a range of circuits with different numbers of components to test
SMSC	Social- discuss how we have easy access to electricity yet in other parts of the world this is not the case for many.
British Values	Mutual respect and tolerance – through working together to plan and implement scientific experiments.
School Values	Healthy- recognise the risks to health posed by electricity.

	Autumn 2
UKS2	Evolution and Inheritance



	Year 5	Year 6
	L1: How do we know that living things have changed over time? L2: What can fossils tell us about life on Earth in the past? L3: Why do offspring look similar to their parents but not exactly the same? L4: How are animals and plants suited to their environment? L5: How do adaptations help living things survive where they live? L6: Can adaptation lead to new species over time?	L1: How do we know that living things have changed over time? L2: What can fossils tell us about life on Earth in the past? L3: Why do offspring look similar to their parents but not exactly the same? L4: How are animals and plants suited to their environment? L5: How do adaptations help living things survive where they live? L6: Can adaptation lead to new species over time?
<b>Key Concepts to assess</b>	L1: Children should know that living things have changed over time and that some animals from the past were different from those today. L2: Children should know that fossils show us what living things looked like long ago and help us understand how life has changed. L3: Children should know that plants and animals have offspring that are similar to them, but that they are not exactly the same as their parents or each other. L5: Children should know that living things have features that help them survive in their environment. L6: Children should know that helpful features can be passed on, and over a long time, this can lead to changes in a species (plants and animals).	L1: Children should know that living things change slowly over time through evolution. L2: Children should know that fossils give clues about living things from the past and how they have changed. L3: Children should know that even though traits are inherited, there are still differences between offspring. L5: Children should know that adaptations help animals and plants live successfully in their habitats. L6: Children should know that adaptations that help survival can be passed on and cause changes in a species over many generations (plants and animals).
<b>Vocabulary</b>	evolution, change, time, fossil, extinct, species, environment, offspring, inheritance, characteristics, similar, different, variation, adaptation, survival	evolution, natural selection, fossil record, extinct, inherited traits, offspring, variation, species, adaptation, environment, survival, generation, DNA, reproduction, evidence
<b>Experiences</b>	<b>Scientific Enquiry – Identifying &amp; Classifying</b> - ...identify features in animals and plants that are passed on to offspring and explore this process by considering the artificial breeding of animals or plants e.g. dogs <b>Scientific Enquiry – Identifying &amp; Classifying</b> - identify characteristics that will make a plant or animal suited or not suited to a particular habitat and design a new plant or animal to live in a particular habitat	
<b>SMSC</b>	Spiritual- by asking questions about the world around them and how living things rely on and contribute and adapt to their environment	
<b>British Values</b>	Mutual respect and tolerance – through listening to others views on evolution as a concept.	
<b>School Values</b>	Inclusive- recognise that as humans we are all different and have our own personal characteristics that make us unique.	



Spring 1		
UKS2	Light	
	Year 5	Year 6
	<p>L1. How does light travel, and why is it considered a form of energy?</p> <p>L2. What happens when light passes through different materials, such as transparent, translucent, and opaque objects?</p> <p>L3. How can light be reflected, and how do we use reflection in our everyday lives, such as with mirrors or periscopes?</p> <p>L4. How do we see objects, and how does light interact with our eyes to help us detect them?</p> <p>L5. What is the role of a prism in separating white light into a spectrum of colours, and how does this help us understand light?</p> <p>L6. How do shadows form, and how can we explain the way shadows change based on the position of the light source?</p>	<p>L1. How does light travel, and why is it considered a form of energy?</p> <p>L2. What happens when light passes through different materials, such as transparent, translucent, and opaque objects?</p> <p>L3. How can light be reflected, and how do we use reflection in our everyday lives, such as with mirrors or periscopes?</p> <p>L4. How do we see objects, and how does light interact with our eyes to help us detect them?</p> <p>L5. What is the role of a prism in separating white light into a spectrum of colours, and how does this help us understand light?</p> <p>L6. How do shadows form, and how can we explain the way shadows change based on the position of the light source?</p>
Key Concepts to assess	<p>L1: Children will know that light travels in straight lines, is a form of energy, and everything we see is either a light source or something reflecting light.</p> <p>L2: Children will know that light passes through different materials (transparent, translucent, opaque) and that translucent materials allow some light to pass through, but don't provide a clear view of objects behind them.</p> <p>L3: Children will know that white light is made up of all the colours of the spectrum and can be separated into a rainbow of colours using a prism.</p> <p>L4: Children will know that light can be reflected, and we use reflection in everyday life with mirrors and devices like periscopes to see things that are out of direct sight.</p> <p>L5: Children will know that we see objects because light interacts with our eyes. The light travels from the source, through the environment, and reaches our eyes, allowing us to perceive objects.</p> <p>L6: Children will know that shadows form when light is blocked by an object, and they can change size and shape depending on the position of the light source.</p>	<p>L1: Children will know that light travels in straight lines, is a form of energy, and everything we see is either a light source or something reflecting light.</p> <p>L2: Children will know that light behaves differently when it passes through materials such as transparent, translucent, and opaque objects, and that translucent objects cause the light to scatter, making objects look blurry.</p> <p>L3: Children will know that when white light passes through a prism, it is refracted, and the different colours of the light spectrum spread out. This helps us understand that light is made up of many different colours.</p> <p>L4: Children will know that when light hits an object, some colours are absorbed, and some are reflected. They can see the colours that are reflected, and they understand that shadows are formed when light is blocked.</p> <p>L5: Children will know that reflection allows us to see objects indirectly, and we use tools like mirrors and periscopes to reflect light to our eyes and view things outside our direct line of sight.</p> <p>L6: Children will know that we can see objects because light travels from light sources to our eyes, passing through or reflecting off objects, and that our eyes use the iris, lens, and retina to process the light into images.</p>
Vocabulary	Light, Energy, Reflection, Refraction, Translucent, Opaque, Prism, Spectrum, White light, Absorption, Shadow, Periscope, Angle, Lens, Eye, Iris, Retina	Light, Energy, Reflection, Refraction, Transparent, Opaque, Spectrum, White light, Absorption, Shadow, Periscope, Wavelength, Lens, Iris, Retina, Focus



## Cherry Tree Academy Medium Term - Science

<b>Experiences</b>	Scientific Enquiry – investigate how light is refracted through differently, through different liquids Scientific Enquiry – Pattern Seeking – investigate whether coloured filters affect what can be seen and what can't be seen Scientific Enquiry – Pattern Seeking – investigate how light travels in straight lines based by using mirrors to see objects out of sight and how angles of incidence and reflection are equal
<b>SMSC</b>	Moral- right to privacy- how using a periscope should not invade the privacy of others
<b>British Values</b>	Individual liberty – right to privacy- how using a periscope should not invade the privacy of others
<b>School Values</b>	Healthy- look at how important it is to take care of our eyesight.



Summer 1		
Animals Including Humans – Circulatory System		
UKS2	Year 5	Year 6
	<p>L1: What are the main parts of the human circulatory system and how do they work together?                      L2: How does the heart function?                      L3: What is the role of blood and how do blood cells contribute to health?                      L4: What is the role of the digestive system in breaking down food and providing nutrients?                      L5: How does exercise affect the circulatory and respiratory systems?                      L6: How do lifestyle choices impact on our health?</p>	<p>L1: What are the main parts of the human circulatory system and how do they work together?                      L2: How does the heart function?                      L3: What is the role of blood and how do blood cells contribute to health?                      L4: What is the role of the digestive system in breaking down food and providing nutrients?                      L5: How does exercise affect the circulatory and respiratory systems?                      L6: How do lifestyle choices impact on our health?</p>
<b>Key Concepts to assess</b>	<p>L1: Children will know that the human circulatory system includes the heart, blood, and blood vessels, and how these parts work together to move oxygen, nutrients, and waste products around the body.                      L2: Children will know that the heart is a muscle that pumps blood throughout the body and that it has four chambers: the right atrium, right ventricle, left atrium, and left ventricle.                      L3: Children will know that blood is made up of red blood cells, white blood cells, platelets, and plasma, and that each part of the blood plays an important role in transporting oxygen, fighting infections, and clotting.                      L4: Children will know that the digestive system breaks down food into nutrients that the body can use for energy, growth, and repair, and that the process includes the mouth, stomach, and intestines.                      L5: Children will know that regular exercise strengthens the heart and lungs, improves circulation, and increases the efficiency of the respiratory and circulatory systems.                      L6: Children will know that lifestyle choices such as diet, exercise, and habits like smoking or drinking alcohol can have a positive or negative impact on the circulatory and respiratory systems, affecting overall health. They will have carried out their own research to support this.</p>	<p>L1: Children will know that the human circulatory system includes the heart, blood, and blood vessels, and how each part of the system works together to transport oxygen, nutrients, and remove waste products from the body.                      L2: Children will know that the heart functions as a pump that circulates blood throughout the body, with a focus on how the blood moves in a cycle between the lungs and the body through the heart's four chambers.                      L3: Children will know that blood is composed of red blood cells, white blood cells, platelets, and plasma, and each type of blood cell has a specific function, including transporting oxygen, fighting infections, and clotting.                      L4: Children will know that the digestive system is responsible for breaking down food into nutrients that are absorbed by the body for energy and growth, including the role of the stomach, small intestine, and large intestine.                      L5: Children will know that exercise improves the efficiency of the circulatory and respiratory systems by increasing heart rate, oxygen intake, and lung capacity, which strengthens the body's ability to function at rest and during physical activity.                      L6: Children will know that lifestyle choices like eating a balanced diet, engaging in regular physical activity, and avoiding harmful substances such as alcohol and tobacco have significant effects on long-term health, including the circulatory and respiratory systems.</p>
<b>Vocabulary</b>	<p>Circulatory system, blood vessels, oxygenated, deoxygenated, harmful, helpful, red blood cells white blood cells, plasma, platelets arteries, dissection, lungs</p>	<p>Circulatory system, blood vessels, oxygenated, deoxygenated, harmful, helpful, red blood cells white blood cells, plasma, platelets arteries, dissection, lungs, perspire, lung capacity, deficiencies anemia carbon dioxide</p>
<b>Experiences</b>	<p>Scientific Enquiry – investigate the components of blood by making a model                      Scientific Enquiry –investigate the effect of different activities on my pulse rate                      Scientific Enquiry – compare the operation of a human heart to a cow/pig's heart through dissection.</p>	
<b>SMSC</b>	<p>Moral – recognising the right choices to have a healthy body</p>	



Cherry Tree Academy Medium Term - Science

<b>British Values</b>	Individual liberty – recognising that people have a choice in how they look after their body
<b>School Values</b>	Healthy- discuss the importance of keeping our mind and body healthy.



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Summer 2		
Living Things and their Habitats – Life Cycles		
UKS2	Year 5	Year 6
	<p>L1: What are the differences and similarities in the life cycles of a mammal and an amphibian?</p> <p>L2: How does the life cycle of an insect compare to that of a bird?</p> <p>L3: How do animals reproduce, and how does this link to their life cycles?</p> <p>L4: How do flowering plants reproduce through seeds and pollination?</p> <p>L5: How can new plants grow without seeds, and what happens when we grow them from cuttings?</p> <p>L6: How and why do scientists classify living things into different groups?</p>	<p>L1: What are the differences and similarities in the life cycles of a mammal and an amphibian?</p> <p>L2: How does the life cycle of an insect compare to that of a bird?</p> <p>L3: How do animals reproduce, and how does this link to their life cycles?</p> <p>L4: How do flowering plants reproduce through seeds and pollination?</p> <p>L5: How can new plants grow without seeds, and what happens when we grow them from cuttings?</p> <p>L6: L6: How and why do scientists classify living things into different groups?</p>
<b>Key Concepts to assess</b>	<p>L1: Children will know that mammals give birth to live young and amphibians lay eggs in water; they will know that the stages in their life cycles differ significantly.</p> <p>L2: Children will know that insects often go through metamorphosis (e.g., egg, larva, pupa, adult), while birds hatch from eggs and develop into adults through different stages.</p> <p>L3: Children will know that animals reproduce in different ways, including sexual reproduction, and that reproduction is a key part of life cycles.</p> <p>L4: Children will know that flowering plants reproduce through pollination, fertilisation, seed formation and seed dispersal.</p> <p>L5: Children will know that new plants can also grow asexually, for example from cuttings or runners, and that these plants are genetically identical to the parent.</p> <p>L6: Children will know that living things are grouped based on their characteristics and similarities/differences, and that classification helps scientists organise and study organisms.</p>	<p>L1: Children will know detailed similarities and differences in life cycles between mammals and amphibians, and why these differences are suited to their environments.</p> <p>L2: Children will know the stages of incomplete and complete metamorphosis in insects and compare these with the life cycle of birds, noting patterns and purposes.</p> <p>L3: Children will know the reproductive processes of different animals and how these processes support survival of the species in various habitats.</p> <p>L4: Children will know the function of each part of a flowering plant involved in reproduction, including the role of insects and wind in pollination.</p> <p>L5: Children will know that asexual reproduction allows plants to reproduce without seeds and that it produces clones of the parent plant.</p> <p>L6: Children will know that classification systems help scientists describe, identify and group living things using observable features, and that microorganisms are also included in these systems.</p>
<b>Vocabulary</b>	life cycle, mammal, amphibian, insect, bird, reproduction, metamorphosis, pollination, fertilisation, seed dispersal, flowering plant, germination, cuttings, runner, offspring, egg, larva, adult	classification, vertebrate, invertebrate, species, kingdom, organism, characteristics, environment, micro-organism, taxonomy, bacteria, fungi, scientific naming, Carl Linnaeus, dichotomous key
<b>Experiences</b>	Use of garden area to classify plants and minibeasts	
<b>SMSC</b>	Spiritual- by asking questions about the world around them and how living things rely on and contribute to their environment	
<b>British Values</b>	Individual Liberty- discussion around the fact that while most humans can reproduce it is an individual choice to have a family or not.	
<b>School Values</b>	Considerate- discuss how we should be considerate of the needs of all creatures and protect their habitats to allow them to live safely.	