

Cheetwood Community Primary School



Science Skills, Knowledge and Knowledge Categories

Year group	Term	Scheme of Work	Skills (What do we want them to do by the end of the unit?)	Knowledge (what are the 3(EYFS), 4 – 5 (KS1), 5-6 (KS2) pieces of knowledge by the end of the unit?)	Knowledge Categories
Nursery	Autumn	Materials Animals inc humans Seasons Forces	<p>I can talk about what I see in the environment using specific vocabulary.</p> <p>I can collect litter and keep the environment clean.</p> <p>I can observe and identify natural autumnal features within the environment.</p> <p>I can begin to see the outcome of a magnet (attract/repel).</p> <p>I can explore a variety of wind up toys.</p> <p>I can talk about different forces I can feel.</p>	<p>To be able to use all their senses in hands-on exploration of natural materials.</p> <p>To understand the need to respect and care for the natural environment and all living things.</p> <p>To understand how the weather changes in different seasons.</p> <p>To understand push and pull.</p>	<p>Chemistry</p> <p>Biology</p> <p>Physics</p> <p>Working Scientifically</p>
	Spring	Materials Animals inc humans Seasons Forces	<p>I can talk about differences between materials.</p> <p>I can begin to talk about changes (ice/chocolate melting).</p> <p>I can begin to explain the life cycle of a plant.</p> <p>I can begin to identify some plants in our environment.</p>	<p>To be able to explore collections of materials with similar/different properties.</p> <p>I know plants grow from a seed/bean.</p> <p>I know some of the things that a plant needs to grow.</p>	<p>Biology</p> <p>Chemistry</p> <p>Working Scientifically</p>

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			I can use my senses to explain what I can see/hear/feel in the environment.		
	Summer	Materials Animals inc humans Seasons Forces	<p>I can make observations and begin to ask questions.</p> <p>I can begin to investigate some materials attracting and repelling magnets.</p> <p>I can identify some minibeasts.</p> <p>I can identify habitats for minibeasts in our environment.</p> <p>I can begin to explore pulleys in the outdoor environment.</p>	<p>I am able to explore collections of materials with similar/different properties.</p> <p>I know some key features of a duck lifecycle.</p> <p>I know 3 facts about spiders.</p> <p>I know some key vocabulary: leaves, flowers, rock and the names of some minibeasts.</p>	<p>Biology</p> <p>Physics</p> <p>Working Scientifically</p>
Reception	Autumn	Materials Animals inc humans Seasons	<p>I can explore natural materials using my 5 senses.</p> <p>I can explain what nocturnal means.</p> <p>I can describe what I see, hear and feel outside in autumn.</p>	<p>I know the 5 senses.</p> <p>I know some animals that are nocturnal such as bats, owls and hedgehogs.</p> <p>I know the signs of autumn.</p> <p>I know some animals behave differently in different seasons.</p>	<p>chemistry</p> <p>Biology</p> <p>Working Scientifically</p>

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			I can name different types of weather in autumn.	I know what hibernates means.	
	Spring	Materials Plants Seasons	I can begin to explore which materials protect us from the rain and sun. I can begin to talk about ice and how and why it melts. I can observe and talk about how plants grow over time. I can begin to talk about the bean lifecycle. I can observe how plants draw up water through the stem.	I know that light can travel through some materials. I know the key features of a plant. I know what happens to ice when the weather gets warmer.	Chemistry Physics Biology Working Scientifically
	Summer	Materials Plants Animals inc humans Seasons	I can begin to test whether some materials are waterproof. I can begin to make predictions for which materials float or sink. I can identify some plants and insects. I can explore natural habitats of insects.	I know some vocabulary such as waterproof, attract and repel. I know the names of some plants. I know the names of some insects. I know some facts abouts life under the sea.	chemistry Biology Physics Working Scientifically

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		Forces Light and Shadow	<p>I can help protect the environment by keeping it clean and planting.</p> <p>I can explore how kites fly.</p>	<p>I know the importance of looking after the environment.</p> <p>I know one fact about each season.</p> <p>To begin to understand how a magnet works.</p> <p>To begin to know what shadows are.</p>	
1	Autumn	Identifying Animals including Ocean Animals	<p>I can name and describe some common animals and group them into carnivores, herbivores and omnivores.</p> <p>I can identify differences between UK birds & reptiles, fish & amphibians and ocean animals.</p> <p>I can tell you what animals need to grow.</p> <p>I can describe why animals are structured the way they are to adapt to the ocean.</p>	<p>I know the names of a variety of common UK birds & reptiles, fish & amphibians including ocean animals and what they look like.</p> <p>I know and can compare the structure of a variety of common animals including ocean animals.</p> <p>I know what carnivores, herbivores and omnivores are.</p> <p>I know how to take care of animals.</p> <p>I know how ocean animals are suited to the environment in which they live.</p>	<p>Biology</p> <p>Working Scientifically</p>

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	Spring 1	Everyday Materials	<p>I can identify different materials.</p> <p>I can tell you what material an object is made from.</p> <p>I can compare and group together a variety of everyday materials based on their physical properties.</p> <p>I can investigate which materials are best to use for an umbrella.</p>	<p>I know the name of a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.</p> <p>I know the physical properties of a variety of everyday materials.</p>	<p>Physics</p> <p>Working Scientifically</p>
	Spring 2	Identifying Plants	<p>I can make observations of plants.</p> <p>I can identify and describe the basic structure of common flowering plants, including trees.</p> <p>I can recognise a variety of common wild and garden plants, including deciduous and evergreen trees.</p>	<p>I know the name of a variety of common wild and garden plants, including deciduous and evergreen trees.</p> <p>I know the basic structure of a variety of common flowering plants, including trees</p> <p>I know the habitat for plants to grow.</p>	<p>Biology</p> <p>Working Scientifically</p>
	Summer 1	My Body	<p>I can label body parts.</p> <p>I can talk about the human life cycle.</p> <p>I can tell you the 5 senses.</p>	<p>I know the 5 senses and which body part they are connected to.</p> <p>I know some body parts.</p> <p>I know the human life cycle</p>	<p>Biology</p> <p>Working Scientifically</p>
	Summer 2	Seasonal Changes	<p>I can observe weather changes throughout the seasons.</p>	<p>I know the changes within the four seasons and how the day length varies.</p>	

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			<p>I can tell you how humans and animals adapt to each season.</p> <p>I can talk about how the weather changes throughout the seasons.</p>	<p>I know that seasons change throughout the year because of the way the Earth travels around the Sun.</p> <p>I know that Summer is the hottest season and Winter is the coldest.</p>	
2	Autumn	Growth & Survival	<p>I can match animals to their offspring.</p> <p>I can explain through investigation how humans grow</p> <p>I understand how the environment is a factor in animal survival and can explain this by giving examples.</p> <p>I can explain the importance of eating healthily and what a balanced diet is..</p> <p>I can explain how exercise keeps people and animals healthy.</p>	<p>I know some animals give birth and some animals lay eggs.</p> <p>I know the 5 human stages of growth are baby, toddler, child, teenager, adult.</p> <p>I know all animals need food, water and air to survive.</p> <p>I know the terminology: carbohydrate, proteins, fats, sugars, vegetables and dairy</p> <p>I know exercise builds strength in muscles including the heart muscle</p>	<p>Biology</p> <p>Working scientifically</p>
	Spring 1	Exploring Everyday Materials	<p>I can identify and describe properties of materials.</p> <p>I can identify materials that are natural and materials that are man-made.</p>	<p>I know some materials are natural and some are man-made.</p> <p>I know that different materials can be used for the same product.</p>	<p>Chemistry</p> <p>Working Scientifically</p>

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			<p>I can identify the suitability of metal and plastic for a variety of purposes.</p> <p>I can identify different products that can be made from wood.</p> <p>I can investigate the flexibility of materials.</p>	<p>I know some scientists such as John Dunlop, Charles Macintosh and Josh McAdam and what they are famous for inventing.</p>	
	Spring 2	Living in Habitats	<p>I can describe what a habitat must provide for its inhabitants</p> <p>I can identify and name animals that live on the coast</p> <p>I can explain some of the food chains that live on the coast</p>	<p>I know the differences between things that are living, dead, and things that have never been alive.</p> <p>I know different animals, habitats and food sources and why habitats are suitable in providing the basic needs for animals living there.</p> <p>I know basic food chains.</p>	<p>Biology</p> <p>Working Scientifically</p>
	Summer 1	Growing Plants	<p>I can explain the process of seed dispersal</p> <p>I can plan, carry out and evaluate an investigation about the conditions that affect germination.</p> <p>To can observe and describe how a plant changes as it matures.</p>	<p>I know that different seeds grow into different plants</p> <p>I know some plants can be grown from bulbs</p> <p>I know some plants disperse their seeds.</p> <p>I know what seed dispersal is.</p>	<p>Biology</p> <p>Working Scientifically</p>

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	Summer 2	Super Scientists	<p>I can explore our senses and reflexes.</p> <p>I can observe the effects of germs growing.</p> <p>I can create a basic electrical circuit.</p> <p>I can explore the effects the gravity.</p> <p>I can tell you what happens when light travels through transparent objects.</p>	<p>I know who Isaac Newton, Andrew Graham Bell and Thomas Edison are and what they each invented and discovered.</p> <p>I know that gravity pulls all objects downwards towards the centre of the Earth.</p> <p>I know how germs transfer and diseases spread.</p>	<p>Chemistry</p> <p>Physics</p> <p>Working Scientifically</p>
3	Autumn	Health & Movement	<p>I can explain what a healthy, balanced diet is.</p> <p>I can name and locate some of the major bones in the human body.</p> <p>I can make different movements with my body and explain which muscles I am using.</p> <p>I can describe similarities and differences between human and animal skeletons.</p>	<p>I know that the two main reasons humans need food is for growth and energy.</p> <p>I know that animals, including humans, get the nutrition they need from what they eat,</p> <p>I know that we have skeletons to support our bodies and protect our internal organs.</p> <p>I know that we need muscles to help us move.</p>	<p>Biology</p> <p>Working Scientifically</p>
	Spring 1	Rocks, Fossils & Soils	<p>I can identify, classify and group rocks based on their properties and specific criteria.</p> <p>I can plan, carry out and evaluate experiments to compare rocks.</p> <p>I can explore soil and how it is formed.</p>	<p>I know where rocks come from and that rocks are split into three main groups.</p> <p>I know what erosion is and what causes it.</p> <p>I know that there are different layers of soil.</p>	<p>Chemistry</p> <p>Working Scientifically</p>

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			<p>I can explore what fossils are and how they are formed.</p> <p>I can classify fossil samples according to various criteria and identify fossilised remains.</p>	<p>I know that a fossil is the petrified remains of plants and animals.</p> <p>I know that a pedologist is a scientist that studies soil and a palaeontologist is a scientist who studies fossils.</p>	
	Spring 2	Forces & Magnets	<p>I can describe what a force is.</p> <p>I can compare how things move on different surfaces</p> <p>I can explain how magnetic forces work.</p> <p>I can identify magnetic materials.</p> <p>I can describe lots of different uses for magnets.</p>	<p>I know that a force is a push or a pull on an object.</p> <p>I know what a forcemeter is and can use one to measure forces in newtons.</p> <p>I know that some forces, like gravity and magnetism, do not need contact between two objects to make things move.</p> <p>I know that magnets have a north pole and a south pole.</p> <p>I know that some materials are magnetic and others are not.</p>	<p>Physics</p> <p>Working Scientifically</p>
	Summer 1	How Plants Grow	<p>I can order the stages in the life cycle of flowering plants.</p> <p>I can identify and describe the functions of the roots, stem, leaf and flower of flowering plants.</p>	<p>I know the main features of flowering plants and what their functions are.</p> <p>I know that plants make their own food using air and sunlight.</p>	

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			<p>I can investigate the way in which water is transported within plants.</p> <p>I can explain pollination, seed formation and seed dispersal.</p> <p>I can explain the structure of seeds and their importance as a food source.</p>	<p>I know how pollination and seed dispersal occurs.</p> <p>I know how the ovaries of flowering plants grow to form seeds.</p> <p>I know the structure of seeds.</p>	
	Summer 2	Light & Shadow	<p>I can explain what shadows are and why they are formed.</p> <p>I can explain how shadows behave.</p> <p>I can explain how the size of shadows change throughout the day.</p> <p>I can explain how light is reflected from surfaces.</p>	<p>I know we need light in order to see.</p> <p>I know some differences between night and day, including how the Sun rises and sets.</p> <p>I know how shadows are made.</p> <p>I know that some surfaces reflect more light than others.</p>	
4	Autumn	Eating & Digestion	<p>I can construct and interpret a variety of food chains.</p> <p>I can identify and classify carnivores, herbivores and omnivores.</p> <p>I can name the different types of teeth in humans and identify their functions.</p>	<p>I know how to create food chains, identifying producers, predators and prey.</p> <p>I know the different types of teeth in humans.</p> <p>I know why it is important to look after teeth and how to keep them healthy.</p>	<p>Biology</p> <p>Working scientifically</p>

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			<p>I can name and label some of the organs associated with the digestive system.</p> <p>I can explain how the digestive system works.</p>	<p>I know about the digestive system: its organs and their functions.</p>	
	Spring 1	States of Matter	<p>I can compare and group materials based on whether they are solids or liquids.</p> <p>I can research the temperatures at which materials change state.</p> <p>I can explain the process of evaporation and condensation.</p>	<p>I know the difference between solids, liquids and gases based on their particles.</p> <p>I know that materials change state when they are heated and cooled.</p> <p>I know that different materials have different freezing/melting points.</p> <p>I know how evaporation and condensation are used in the water cycle.</p>	<p>Chemistry</p> <p>Working scientifically</p>
	Spring 2	Changing Sound	<p>I can explain the relationship between distance and volume.</p> <p>I can explain that some materials are effective in preventing vibrations from sound sources reaching the ear.</p> <p>I can recognise changes in pitch and identify high and low notes.</p>	<p>I know that sounds are created when objects or materials vibrate.</p> <p>I know that sound can travel through different materials.</p> <p>I know that sounds get fainter as the distance from the sound source increases.</p> <p>I know the terms pitch and volume.</p>	<p>Physics</p> <p>Working scientifically</p>

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			I can suggest ways to change the pitch of a sound made by air.	I know that the pitch of a stringed instrument depends on the length, thickness and tightness of the string.	
	Summer 1	Circuits & Conductors	<p>I can construct a simple circuit.</p> <p>I can identify common appliances that use electricity.</p> <p>I can identify and label the components of a circuit</p> <p>I can set up a fair test and make predictions about whether a material is a conductor or insulator.</p>	<p>I know the main components of a circuit.</p> <p>I know why some appliances are mains powered rather than battery powered.</p> <p>I know some of the dangers of electricity and how we can stay safe around electricity.</p> <p>I know the difference between a conductor and an insulator.</p> <p>I know how to make a light bulb glow brighter or dimmer.</p>	<p>Physics</p> <p>Working scientifically</p>
	Summer 2	Living in Environments	<p>I can identify a variety of habitats and explain why organisms live in different habitats.</p> <p>I can classify animals into specific groups according to their characteristics</p> <p>I can identify similarities and differences between similar organisms and make careful observations to identify the characteristics of different organisms</p>	<p>I know what a habitat is and that animals live in habitats that are suited to their needs.</p> <p>I know how to use a classification key to identify animals.</p> <p>I know that animals can be categorised into broad groups according to their characteristics.</p>	<p>Biology</p> <p>Working scientifically</p>

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			I can identify and classify a variety of British plants.	I can use Venn Diagrams and Carroll diagrams to sort plants according to some of their characteristics. I know the impact humans can have on a habitat.	
5	Autumn	Changes & Reproduction	I can sequence the stages of growth. I can compare the gestation periods of humans to other animals. I can describe how a human body changes as we enter old age from adulthood. I can describe the differences between a girl's and boy's body as it develops. I can carry out an investigation to show that the body gets larger as we get older.	I know the stages of growth and development in humans and how the body changes during childhood, adulthood and old age. I know the stages in the gestation period of humans and compare them to other animals. I know the changes that occur to the body during puberty and how they differ for boys and girls.	Biology Working scientifically

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	Spring 1	Earth & Space	<p>I can describe the movement of the Earth, and other planets, relative to the Sun in the solar system.</p> <p>I can describe the movement of the Moon relative to the Earth.</p> <p>I can use the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky.</p> <p>I can use data to draw conclusions about the Sun at different times of the year.</p>	<p>I know that the Sun, Earth and Moon are approximately spherical bodies.</p> <p>I know the size of the Earth, Sun and Moon and how far away from each other they are.</p> <p>I can explain day and night and the apparent movement of the Sun across the sky.</p> <p>I know the Earth’s rotation causes us to perceive the Sun to be moving across the sky.</p> <p>I know the different phases of the Moon and what a luna month is.</p>	<p>Physics</p> <p>Working scientifically</p>
	Spring 2	Forces in Action	<p>I can carry out an investigation to explore the effects of gravity.</p> <p>I can explain which surface has the most friction when an object is moved across it.</p> <p>I can explain how the size of a parachute affects the speed at which it falls to the ground’</p> <p>I can explain which shape of plasticine would fall quickest in a pot of water.</p>	<p>I know that gravity pulls objects towards the centre of the Earth.</p> <p>I know that the weight and size of an object determines the impact of its fall.</p> <p>I know that friction is the force that acts as resistance.</p> <p>I know that water resistance is the force that pushes against objects as they pass through the water.</p>	<p>Physics</p> <p>Working scientifically</p>

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			<p>I can create some simple pulleys, exploring the different forces needed to pull the same object.</p> <p>I can plan and carry out fair tests, taking measurements, making predictions, making observations, recording results and drawing conclusions.</p>	<p>I know that the shape of an object dictates how much water resistance it will meet as it moves through the water</p> <p>I know that pulleys and levers make heavy objects easier to lift and can explain why</p> <p>I know that gears allow a smaller force to have a greater effect.</p>	
	Summer 1	Properties & Changes of Materials	<p>I can mix a variety of materials with water to see whether they will dissolve, float, sink or react.</p> <p>I can compare and classify materials depending on whether they dissolve, float, sink or react when mixed with water.</p> <p>I can investigate and explain the reversible and irreversible changes caused by heating or cooling materials or mixing different materials together.</p> <p>I can carry out a variety of investigations to explore the properties of materials to see if they e.g. conduct electricity, are magnetic, are soluble, etc.</p>	<p>I know that dissolving is a reversible change and that an irreversible change occurs when two materials react with each other to form a new substance.</p> <p>I know that filtering is a good way to separate water from insoluble materials.</p> <p>I know that soluble materials, such as sugar, are able to be separated from water through evaporation.</p> <p>I know that some materials change state when they are heated or cooled and whether these are reversible or irreversible changes.</p> <p>I know that when a material is burned, it produces a new product.</p>	<p>Chemistry</p> <p>Working scientifically</p>

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	Summer 2	Life Cycles	<p>I can dissect a flower to explore the male and female parts of the plant.</p> <p>I can describe the process of sexual and asexual reproduction in flowering plants.</p> <p>I can explain the life process of reproduction in some animals.</p> <p>I can compare the life cycles of animals living in a variety of environments.</p> <p>I can classify a variety of animals according to how they reproduce.</p>	<p>I know how flowering plants reproduce sexually and asexually.</p> <p>I know about sexual reproduction in animals, such as reptiles and fish.</p> <p>I know about the life cycles, gestation periods and growth of animals.</p> <p>I know that the environment in which an animal lives affects the way it reproduces.</p> <p>I know about the work of naturalists and animal behaviourists.</p>	<p>Biology</p> <p>Working scientifically</p>
6	Autumn	Healthy Bodies	<p>I can use scientific ideas to explain a balanced diet.</p> <p>I can explain how nutrients and water are transported within animals and humans.</p> <p>I can describe the functions of the heart, lungs and circulatory system.</p> <p>I can conduct practical experiments and explain the effects of exercise on the heart.</p>	<p>I know how historical health problems were caused.</p> <p>I know about the significance of James Lind and how he helped develop a better understanding of how diet affects health.</p> <p>I know what each food group provides our bodies with and the quantities needed.</p> <p>I know that the human circulatory system transports blood and nutrients to the different parts of the body.</p>	<p>Biology</p> <p>Working Scientifically</p>

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			<p>I can recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</p> <p>I can explain the differences between drugs and their positive/harmful, legal/illegal.</p>	<p>I know that muscles work in pairs to move different parts of the skeleton.</p> <p>I know that some drugs are beneficial even though they may have unpleasant side-effects.</p> <p>I know that drugs affect the way the mind or body works and can name 2 ways.</p>	
	Spring 1	Seeing Light	<p>I can describe natural and man-made light sources.</p> <p>I can explain how light travels.</p> <p>I can explain how light and shadows work.</p> <p>I can explain how the colour/object can change a shadow formation.</p> <p>I can explain the difference between whether or not an object will 'reflect' or 'refract' light.</p> <p>I can name and label different parts of the eye.</p> <p>I can discuss Isaac Newton's experiments with prisms and discuss how we see colours.</p>	<p>I know that light travels in straight lines.</p> <p>I know how shadows can be manipulated.</p> <p>I know that light can change direction when it is reflected.</p> <p>I know what happens to light when it's refracted.</p> <p>I know what characteristics reflective surfaces have.</p> <p>I know different parts of the eye and what they do.</p> <p>I know that white light can be split into a spectrum of seven colours.</p>	<p>Physics</p> <p>Working Scientifically</p>

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	Spring 2	Changing circuits	<p>I can draw and use conventional symbols for circuits.</p> <p>I can design and build a simple circuit for a purpose.</p> <p>I can compare and give reasons for variations in how components function.</p> <p>I can conduct an investigation to see how different wires can affect the brightness of a bulb.</p>	<p>I know the differences between series and parallel circuits.</p> <p>I know that changing certain components within a circuit could affect the brightness of a bulb or the speed of a motor.</p> <p>I know that the length and thickness of a wire and the materials that may be tested, determine the brightness of a bulb.</p> <p>I know how the voltage of cells used in the circuit affects the components.</p>	<p>Physics</p> <p>Working Scientifically</p>
	Summer 1	Evolution & Inheritance	<p>I can identify ways in which families or groups of people have some similar or shared characteristics.</p> <p>I can explain why variation in offspring occurs.</p> <p>I can identify characteristics which help an organism to be well suited to its environment.</p> <p>I can explain how animals and plants have adapted to suit their environment in different ways.</p>	<p>I know that traits are passed from one generation to the next and that characteristics which are inherited may vary.</p> <p>I know that evolution occurs through advantageous traits of a species being passed on.</p> <p>I know that not all inherited characteristics are advantageous.</p> <p>I know that random mutations may or may not be passed from one generation to the next.</p>	<p>Biology</p> <p>Working scientifically</p>

Year group	Term	Scheme of Work	Skills (What do we want them to do by the end of the unit?)	Knowledge (what are the 3(EYFS), 4 – 5 (KS1), 5-6 (KS2) pieces of knowledge by the end of the unit?)	Knowledge Categories
			<p>I can use different evolutionary scientists' work to identify advantageous traits.</p> <p>I can talk about the work of Carl Linnaeus and, particularly, that of Charles Darwin and can share what they have learned about the process of evolution.</p>	<p>I know how animals and plants are adapted to suit their environment and that adaptation may lead to evolution.</p> <p>I know that primate species (including humans) have changed over time.</p> <p>I know that living things have changed over time and that fossils provide information about living things.</p>	
	Summer 2	Classifying Organisms	<p>I can classify plants based on specific characteristics.</p> <p>I can explain the difference between vascular and nonvascular plants.</p> <p>I can classify and group microorganisms and animals based on specific characteristics.</p> <p>I can research about the development of Linnaeus' classification system, then use it to identify and classify different organisms.</p>	<p>I know the difference between flowering and non-flowering plants.</p> <p>I know how plants are classified by botanists.</p> <p>I know what microorganisms need to survive and how they can be grouped.</p> <p>I know about the development of Linnaeus' classification system.</p> <p>I know who Carl Linnaeus was and how he contributed to science.</p>	<p>Biology</p> <p>Working scientifically</p>