Shoreham Village School

National Curriculum – Science

EYFS

Science at Foundation Stage is introduced indirectly through activities that encourage your child to explore, problem solve, observe, predict, think, make decisions and talk about the world around them. It's called 'knowledge and understanding of the world'.

Early Years science also helps children with skills in other Foundation Stage areas of the national curriculum, such as physical development and creative development.

Children explore creatures, people, plants and objects in their natural environments. They observe and manipulate objects and materials to identify differences and similarities. For example, they may look at an egg whisk, sand, paper and water to learn about things that are natural and manmade and their different functions. Children also learn to use their senses, feeling dough or listening to sounds in the environment, such as sirens or farm animals.

Your child will be encouraged to ask questions about why things happen and how things work. They might do activities such as increasing the incline of a slope to observe how fast a vehicle travels, or opening a mechanical toy to see how it works. Your child will also be asked questions about what they think will happen to help them communicate, plan, investigate, record and evaluate findings.

Awareness of space may be taught by encouraging children to make big and small movements to music and to think about how much space they need. They will also learn to recognise changes that happen to the body when they are active.

Children will also learn about the importance of keeping healthy and the things that contribute to this by, for example, cooking or identifying fruit and vegetables.

Children explore and respond to a variety of sensory experiences through music and art. Children might collect materials, such as rough sandpaper, soft fabric and shiny bottle tops to build a sensory wall. They explore colour, texture, shape, form and space by mixing colours, painting, modelling and dancing.

They also learn about sounds - how they can be changed and how to imitate sounds they hear.

Key stage 1

The principal focus of science teaching in key stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos. 'Working scientifically' is described separately in the programme of study, but must always be taught through and clearly related to the teaching of substantive science content in the programme of study.

Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content. Pupils should read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

Lower Key stage 2

The principal focus of science teaching in lower key stage 2 is to enable pupils to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out. 'Working scientifically' is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content. Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge.

Upper Key Stage 2

The principal focus of science teaching in upper key stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. At upper key stage 2, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information. Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings. 'Working and thinking scientifically' is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content. Pupils should read, spell and pronounce scientific vocabulary correctly.

Science for KS1 and KS2 at Shoreham Village School is based around the Kent Scheme of Work for Primary Science

Substantive knowledge – the knowledge produced by science
Disciplinary knowledge – the knowledge underpinning pupils' understanding of working scientifically

SCIENCE OVERVIEW – ROTATION A:

	TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
RECEPTION	**All about me:** My body is made of a skeleton keeps me upright; muscles help me move. Skeleton is made of different bones	SEASONS AUTUMN plants CLOTHING WEATHER TOYS / ELECTRICITY MATERIALS	WINTER SEASONS - CLOTHES CHANGES OF STATE WEATHER	**Mini-beast.** Natural World/observations plants & animals	**Growing plants** Natural world/Life cycles/changing states of matter	Natural world/ seasons/contrasting environments
PALMER: **YEAR 1/ YEAR 2**	Yr 1/2 Plants – Yr 1- naming trees in the school grounds and observing how they change; Yr 2 – growing flowers from seeds and bulbs Yr 1 Animals, including humans Yr 1 Seasonal Change					
	Everyday Materials (Yr 1) PLUS: two weeks on seasonal changes / plants	Animals, including Humans – Parts of the Human body (Yr 1) PLUS: one week on seasonal changes / plants	Everyday Materials (Yr 1) PLUS: two weeks on seasonal change / plants	Animals, including humans – Animals (Yr 1) PLUS: one week on seasonal change / plants	Everyday Materials (Yr 1) PLUS: two weeks on seasonal change / plants	Plants (Yr 1) Seasonal Change (Yr 1)
MOORE: **YEAR 3 / YEAR 4**	Yr 3 Plants (Gathering evidence of life cycles) Yr 4 Living Things and their habitats					
	Plants (Yr 3) PLUS: two weeks on living things	Forces and Magnets (Yr 3) PLUS: one week on plants and living things	Animals including Humans (Teeth and Digestion) (Yr 3) PLUS: one week on plants and one week on living things	Rocks and Soils (Yr 3) PLUS: one week on plants and one week on living things	Basic First Aid PLUS: one week on plants and one week on living things.	Living Things and their habitats (Yr 4) PLUS: one week on plants
CAMERON **YEAR 5/ YEAR 6**	Animals including humans (Year 6) Nutrition / Diet / exercise / lifestyle	Forces friction, air resistance, gravity.	Properties and changes of materials (part two)	Animals including humans - Circulatory System	Earth and Space	Evolution/Inheritance Animals including humans (Year 5 – reproduction)

SCIENCE OVERVIEW – ROTATION B:

	TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
RECEPTION	**All about me:** My body is made of a skeleton keeps me upright; muscles help me move. Skeleton is made of different bones	SEASONS AUTUMN plants CLOTHING WEATHER TOYS / ELECTRICITY MATERIALS	WINTER SEASONS - CLOTHES CHANGES OF STATE WEATHER	**Mini-beast.** Natural World/observations plants & animals	**Growing plants** Natural world/Life cycles/changing states of matter	Natural world/ seasons/contrasting environments
PALMER: **YEAR 1/ YEAR 2**	Yr 2 Living Things and their Habitats Yr 1/2 – Plants –Yr 1 – naming and identifying flowers/plants in ornamental beds; Yr 2 – growing vegetables, fruit and salad.					
	Plants (planning and growing seeds and bulbs outside) (Yr 2) include additional statement from Yr 1 Plants. PLUS: two weeks on Living Things and their habitats (Yr 2)	Uses of Everyday Materials (Yr 2) PLUS: one week on Living Things and their habitats (Yr 2)	Animals, including humans (basic needs and keeping healthy) (Yr 2) PLUS: two weeks on Living Things and their habitats (Yr 2)	Uses of Everyday Materials (Yr 2) PLUS: one week on Living Things and their habitats (Yr 2)	Animals including humans (offspring) (Yr 2) PLUS: two weeks on Living Things and their habitats (Yr 2)	Living things and their habitats (Yr 2) Plants (harvesting and cooking) include additional statement from Yr 1 Plants (Yr 2)
MOORE: **YEAR 3 / YEAR 4**	Sound	Light	Animals including Humans – (Skeletons and Movement	Electricity	Animals and Humans – (Health and Nutrition)	States of Matter
CAMERON **YEAR 5/ YEAR 6**	Yr 6 Living Things and their Habitats - classification of plants and animals					
	Properties and changes of materials (Year 5) Plus: time to carry out surveys for living things and their habitats.	Living things and their habitats (year 6) Classification of plants and animals	Electricity – creating gadgets Plus: time to carry out surveys for living things and their habitats.	Light Plus: time to carry out surveys for living things and their habitats.	Forces – Pulleys, Levers, Gears and Simple Machines Plus: time to carry out surveys for living things and their habitats and planting plants for bees and butterflies.	Living things and their habitats (Year 5) Life cycles Plus: time to carry out surveys for living things and their habitats.

KEY QUESTIONS TO START EACH SCIENCE TOPIC WITH
ROTATION A

Year 1/2	**TERM 1:** **PLANTS (Yr 1) - Why do some trees lose their leaves in Autumn?** **ANIMALS INCLUDING HUMANS (Yr 1) – Do all animals eat meat?** **SEASONAL CHANGE (Yr 1) - How can you tell when it is summer in the UK?** **EVERYDAY MATERIALS (Yr 1) – Is glass the best material for a football?** **TERM 2:** **(Continue with plants; animals including humans and seasonal change from above)** **ANIMALS INCLUDING HUMANS – PARTS OF THE HUMAN BODY (Yr 1) – What can our bodies do?** **TERM 3:** **(Continue with plants; animals including humans and seasonal change from above)** **EVERYDAY MATERIALS (Yr 1) – Is glass the best material for a football?** **TERM 4:** **(Continue with plants; animals including humans and seasonal change from above)** **ANIMALS INCLUDING HUMANS – ANIMALS (Yr 1) – Do all animals eat meat?** **Term 5:** **(Continue with plants; animals including humans and seasonal change from above)** **EVERYDAY MATERIALS (Yr 1) – Is glass the best material for a football?** **TERM 6:** **PLANTS (Yr 1) – Why do some trees lose their leaves in Autumn?** **SEASONAL CHANGE (Yr 1) - How can you tell when it is summer in the UK?**
Yr 3/4	**TERM 1:** **LIVING THINGS AND THEIR HABITATS (Yr 4) – Why are some parts of the UK seeing more urban foxes?** **PLANTS (Yr 3) – Can plants survive without soil?** **TERM 2:** **(continue with living things and their habitats and plants from above)** **FORCES AND MAGNETS (Yr 3) – Are all metals attracted to magnets?** **TERM 3:** **(continue with living things and their habitats and plants from above)** **ANIMALS INCLUDING HUMANS – TEETH AND DIGESTION (Yr 4) – Are tusks teeth?** **TERM 4:** **(continue with living things and their habitats and plants from above)** **ROCKS AND SOIL (Yr 3) – How can scientists sort rocks?** **TERM 5:** **(continue with living things and their habitats and plants from above)**

	BASIC FIRST AID – Would you know what to do if …..? **<u>TERM 6:</u>** **LIVING THINGS AND THEIR HABITATS (Yr 4) – Why are some parts of the UK seeing more urban foxes?** **PLANTS (Yr 3) - Can plants survive without soil?**
Yr 5/6	**<u>TERM 1:</u>** **ANIMALS INCLUDING HUMANS – NUTRITION, DIET, EXERCISE (Yr 6) – If I do 60 minutes of exercise everyday can I eat what I want?** **<u>TERM 2:</u>** **FORCES – FRICTION, AIR RESISTANCE, GRAVITY (Yr 5) – Will a large stone or a large ball of paper hit the ground first?** **<u>TERM 3:</u>** **PROPERTIES AND CHANGES OF MATERIALS (Yr 5) – What happens to sugar when it is added to hot water?** **<u>TERM 2:</u>** **<u>TERM 4:</u>** **ANIMALS INCLUDING HUMANS – CIRCULATORY SYSTEM (Yr 6) – Is the blood in your veins blue?** **<u>TERM 5:</u>** **EARTH AND SPACE (Yr 5) – Why do we have night and day?** **<u>TERM 6:</u>** **ANIMALS INCLUDING HUMANS – REPRODUCTION (Yr 5) – Why do people have children?** **EVOLUTION AND INHERITANCE (Yr 6) -**

KEY QUESTIONS TO START EACH SCIENCE TOPIC WITH
ROTATION B

Yr 1/2	**<u>TERM 1:</u>** **LIVING THINGS AND THEIR HABITATS (Yr 2) – How do polar bears survive arctic conditions?** **PLANTS (Yr 1/2) – What do plants need to grow and stay healthy?** **PLANTS – PLANNING AND GROWING SEEDS AND BULBS OUTSIDE (Yr 2) - What do plants need to grow and stay healthy?** **<u>TERM 2:</u>** **(continue living things and their habitats; plants from above)** **USES OF EVERYDAY MATERIALS (Yr 2) – Can you squash bend and twist a solid object?** **<u>TERM 3:</u>** **(continue living things and their habitats; plants from above)** **ANIMALS INCLUDING HUMANS - BASIC NEEDS AND KEEPING HEALTHY (Yr 2) – Which foods make a healthy diet?** **<u>TERM 4:</u>** **(continue living things and their habitats; plants from above)** **USES OF EVERYDAY MATERIALS (Yr 2) - Can you squash bend and twist a solid object?**

	<u>TERM 5:</u> **(continue living things and their habitats; plants from above)** **ANIMALS INCLUDING HUMANS (OFFSPRING) (Yr 2) – Do all animals look like smaller versions of their parents?** **<u>TERM 6:</u>** **LIVING THINGS AND THEIR HABITATS (Yr 2) - How do polar bears survive arctic conditions?** **PLANTS – HARVESTING AND COOKING (Yr 2) – What do plants need to grow and stay healthy?**
Yr 3/4	**<u>TERM 1:</u>** **SOUND (Yr 4) – How do we hear?** **<u>TERM 2:</u>** **LIGHT (Yr 3) – Do all surfaces reflect light?** **<u>TERM 3:</u>** **ANIMALS INCLUDING HUMANS – SKELETONS AND MOVEMENT (Yr 3) – Do all animals have skeletons?** **<u>TERM 4:</u>** **ELECTRICITY (Yr 4) – Why won't the TV turn on?** **<u>TERM 5:</u>** **ANIMALS INCLUDING HUMANS – HEALTH AND NUTRITION (Yr 3) – How can we eat a balanced diet?** **<u>TERM 6:</u>** **STATES OF MATTER (Yr 4) – Where does the water in puddles go?**
Yr 5/6	**<u>TERM 1:</u>** **LIVING THINGS AND THEIR HABITATS – CLASSIFICATION OF PLANTS AND ANIMALS (Yr 6) – What are micro-organisms?** **PROPERTIES AND CHANGES OF MATERIALS – PART 2 (Yr 5) – Will lots of thin layers keep you warmer than one thick layer of clothing?** **<u>TERM 2:</u>** **LIVING THINGS AND THEIR HABITATS – CLASSIFICATION OF PLANTS AND ANIMALS (Yr 6) – What are micro-organisms?** **<u>TERM 3:</u>** **(continue with living things and their habitats from above)** **ELECTRICITY – CREATING GADGETS (Yr) – Will the buzzer make a sound?** **<u>TERM 4:</u>** **(continue with living things and their habitats from above)** **LIGHT (Yr 6) – Is it only shiny surfaces that reflect light?** **<u>TERM 5:</u>** **(continue with living things and their habitats from above)** **FORCES – PULLEYS, LEVERS AND SIMPLE MACHINES (Yr 5) – What are mechanisms?** **<u>TERM 6:</u>** **(continue with living things and their habitats from above)** **LIVING THINGS AND THEIR HABITATS – LIFE CYCLES (Yr 5) – What is an egg?**

Progression throughout the school

	BIOLOGY				CHEMISTRY	PHYSICS			
	PLANTS	**LIVING THINGS AND THEIR HABITATS (INCLUDING CLASSIFI-CATION)**	**ANIMALS INCLUDING HUMANS**	**EVOLUTION**	**MATERIALS**	**LIGHT / SEASONS / EARTH IN SPACE**	**SOUND**	**FORCES**	**ELECTRICITY**
	Scientists: KS1: Angie Burnett KS1: Joseph Banks (1743 – 1820) KS1: Barbara McClintock (1902 – 1992) LKS2: Jan Ingenhousz (1730-1799)	Scientists: KS1: Steve Backshall (1973 -) LKS2: Carl Linnaeus (1707-1778) UKS2: **Jane Goodall** (Wildlife Researcher & Conservationist who studied chimpanzees) UKS2: Beatrix Potter (Mycologist, study of fungi, and Scientific Illustrator)	Scientists: KS1: Florence Nightingale KS1: David Attenborough (1926) KS1: Amy Vedder (1951 -) KS1: Miller Hutchinson (invented first hearing aid) LKS2: William Beaumont (1785-1853) LKS2: Robert Wood Johnson (Inventor of first, First Aid Kit) LKS2: Marie Curie (1867-1934) LKS2: Adelle Davis (Biochemist & Nutritionist who linked health and diet UKS2: Professor Robert Winston (1940 -)	Scientists: UKS2: Charles Darwin (1809 – 1882)	Scientists: KS1: Leo Hendrik Baekeland (1863 - 1944) KS1: Martin Brock – Nanotechnology engineer and Xelflex inventor. KS1: Chester Greenwood (1858-1937) Inventor of Earmuffs KS1: John Boyd Dunlop (1840 – 1921) KS1: Charles Goodyear (1800 – 1860) KS1: Charles Macintosh (176 – 1843) LKS2: Florence Bascom (Geologist who studied the origin and formation of mountains) LKS2: Alfred Barnhard Nobel (1833-1896) UKS2: Jamie Garcia https://bpes.bp.com/super-scientists-	Scientists: LKS2: Percy Shaw (inventor of the cats eye) UKS2: Jean-Bernard-Leon Foucault (1819-1868)	Scientists: LKS2: James Edward Maceo West (b.1931)	Scientists: LKS2: William Gilbert (1544 – 1603) UKS2: Christopher Cockerell (1910-1999)	Scientists: LKS2: Thomas Edison UKS2: Alessandro Volta (1745-1827)

					jamie-garcia-primary				
EY	Children should know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.	There is an enormous range of living things. Organisms are classified into groups at different levels based on similarities in observable characteristics. Differences between organisms are used to identify and name them as individual species. To know there are plants, animals and humans.	To know there are plants, animals and humans.		CHANGING MATERIALS: Materials can be changed – ice to water; water to ice; melting chocolate; making biscuits / cakes; MIXING AND SEPARATING MATERIALS: Materials can be mixed together	• Developing an understanding of change. • Observe and explain why certain things may occur (e.g leaves falling off trees, weather changes). • Look closely at similarities, differences, patterns and change. • Comments and questions about the place they live or the natural world.	To know there are different types of sounds – high, low, loud, soft.	To be able to push and pull objects. Investigating magnets.	To know something s need batteries to work and some things need to be plugged in.
YR 1	Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. To be able to classify trees as deciduous and evergreen. To be able to identify and describe the basic structure of a variety of common plants including roots, stem/trunk, leaves and flowers.	Plants are grouped into common wild and garden plants, deciduous and evergreen trees. Animals are grouped into fish, amphibians, reptiles, birds, mammals Plants and animals can be grouped using observable features.	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Identify and name a variety of common animals that are carnivores, herbivores and omnivores describe and compare the structure of a variety of common animals (fish, amphibians,		DESCRIBING AND USING MATERIALS: There are different materials and they are used to make different objects *Y1 Everyday materials* Different materials, have different properties *Y1 Everyday materials* Materials can be sorted into groups according	• Name the seasons and know about the type of weather in each season • May have some knowledge of were light comes from. • Will most likely have seen their shadows and may know they appear when it is sunny. To be able to name the four seasons and know when they occur in the year. To be able to observe changes across the four	We hear with our ears. *(Y1 Animals, including humans)*		

			reptiles, birds and mammals, including pets) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. To know that animals, including humans, have different body parts ... and these have special functions to help them survive (including senses). To know that different animals need different types of food.		to their observable properties *Y1 Everyday materials* To know how to distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock To be able to describe the simple physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials based on their simple physical properties.	seasons. To be able to observe and describe the weather associated with each season. To be able to describe how the day length varies with each season. Temperature and day length changes over the year – this pattern is referred to as the seasons *(Y1 Seasonal change)* • Some understanding of a reflection. • May understand they need light to be able to see things. -We see with our eyes. *(Y1 Animals, including humans)*			
YR 2	To observe and know how seeds and bulbs grow into mature plants To find out and describe how plants need water, light	To be able to explore and compare the differences between things that are living, dead, and things that have never been alive.	To know that animals, including humans, have offspring which grow into adults. To know and describe the basic		DESCRIBING AND USING MATERIALS: Different materials are suitable for different uses			Pushing and /or pulling can make things start moving, stop, go faster or slower	

	and suitable temperature to grow and stay healthy	To know that most living things live in habitats to which they are suited. To be able to describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. To be able to identify a variety of plants and animals in their habitats, including microhabitats. To be able to describe how animals get their food from plants and other animals using a simple food chain. To be able to identify and name different sources of food.	needs of animals, including humans, for survival (water, food and air). Know and describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.		(properties that can be observed) *Y2 Uses of everyday materials* CHANGING MATERIALS: Some solid materials can be changed by a contact force acting on them *Y2 Uses of everyday materials* Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. Identify and compare and know the uses of a variety of everyday materials, including wood, metal, plastic, glass, brick/rock, and paper/cardboard			or change their shape Y2 Uses of everyday materials	
YR 3	Identify, know and describe the functions of different parts of flowering plants:		To identify and know that animals, including humans, need the right types and amount of		DESCRIBING AND USING MATERIALS: Different materials, including rocks,	-There is a variety of sources of light, including the Sun. -Recognise that they need light in order to see things		To be able to compare how things move on different surfaces.	

	roots, stem/truck, leaves and flowers. To be able to identify and describe the function of the stem. To be able to identify and describe the function of the leaves. Explore and know the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant Investigate and understand the way in which water is transported within plants Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.		nutrition, and that they cannot make their own food; they get nutrition from what they eat. Identify and know that humans and some animals have skeletons and muscles for support, protection and movement.		have different properties *Y3 Rocks* MIXING AND SEPARATING MATERIALS: Mixtures occur when materials are mixed together but don't react to each other. Soils are a mixture of rocks and organic matter. *(Y3 Rocks)* Fossils are formed when trapped within rock. *(Y3 Rocks)* Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Describe in simple terms how fossils are formed when things that have lived are trapped within rock. Recognise that soil are made from rocks and organic matter.	and that dark is absence of light. - Notice that light is reflected from surfaces. - Recognise that light from the sun can be dangerous and that there are ways to protect the eyes. - Recognise that shadows are formed when light from a light source is blocked by a solid object. - Find patterns in the way that the size of shadows change. - Light travels from a light source in a straight line. -When light hits a material, some of it is reflected off the material. - Some materials let light pass through them. -Some materials block the light and a shadow is formed. -Some materials reflect light better than others. - The size of shadows change according to the size and shape of objects and		- To be able to notice that some forces need contact between 2 objects, but magnetic forces can act at a distance. - To be able to observe how magnets attract or repel each other and attract some materials and not others. - To be able to compare a variety of everyday materials on the basis of whether they are attracted to a magnet. - To be able to group together a variety of everyday materials on the basis of whether they are attracted to a magnet. - To be able to identify some magnetic materials. - To be able to describe magnets as having 2 poles.	

						distance from the light source. - Sunlight can be dangerous. - The Sun appears to move across the sky. - Shadows and reflections are different.		- To be able to predict whether 2 magnets will attract or repel each other, depending on which poles are facing. -Pushing and /or pulling can make things start moving, stop, go faster or slower and magnets or change their shape. - Some forces need contact between two objects (contact forces). - When one object moves over another one there will be a force between them that opposes motion. This is called friction. - Some forces act between objects although they are not in contact (non-contact forces). - Magnets can act at a distance. - Some materials are	

								magnetic, some are not. - Magnets exert attractive and repulsive forces on each other.	
YR 4		To know that living things can be grouped in a variety of ways. To be able to use classification keys to help group, identify and name a variety of living things in their local and wider environment. To be able to recognise that environments can change. To be aware that changes can sometimes pose dangers to living things.	Describe the simple functions of the basic parts of the digestive system in humans. To know that food is broken down further in the stomach and intestine and absorbed into the blood stream with water. Identify the different types of teeth in humans and their simple functions. To know that animals and humans have teeth to help them eat. Construct and interpret a variety of food chains, identifying producers, predators and prey.		DESCRIBING AND USING MATERIALS: To know materials can be solids, liquids or gases. Compare and group materials together, according to whether they are solids, liquids or gases. *Y4 States of Matter* CHANGING MATERIALS: Some materials change state when heated or cooled. Heating causes melting and evaporation. Removing heat causes condensing and solidifying (freezing). Observe that some materials change state when they are heated or cooled, and measure the		- Sounds can be different. - Sounds are made when something vibrates. - Sound travels through a medium (solid, liquid or gas). - Sound travels in all directions from a source. - Sounds get fainter the further they are from the source. - The nature of sounds depends on how the vibrations are produced. -The volume of a sound can be changed. -The pitch of a sound can be changed. - Some materials reflect sound; some absorb sound and act as sound insulators.		To be able to identify common appliances that run on electricity. - To be able to construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. - To be able to identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. - To be able to recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.

					temperature at which this happens in degrees Celsius (°C), building on their teaching in mathematics. *Y4 States of Matter* Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. *Y4 States of Matter* MIXING AND SEPARATING MATERIALS: Mixtures occur when materials are mixed together but don't react to each other.		- To be able to identify how sounds are made, associating some of them with something vibrating. - To be able to recognise that vibrations from sounds travel through a medium to the ear. - To be able to find patterns between the pitch of a sound and features of the object that produced it. - To be able to find patterns between the volume of a sound and the strength of the vibrations that produced it. - To be able to recognise that sounds get fainter as the distance from the sound source increases.		- To be able to recognise some common conductors. - To be able to recognise some common insulators. - To be able to associate metals with being good conductors. - Everyday appliances connected to mains electricity must be used safely. Some devices use batteries which can be handled carefully. - Electrical appliances need a source of electricity to work. - A complete circuit is needed for an electric current to flow. - A circuit is made up of different components. - A switch opens and closes a circuit. - Some materials are better conductors than others. -

YR 5		To be able to describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. To be able to describe the life process of reproduction in some plants and animals.	To describe the changes as humans develop to old age		DESCRIBING AND USING MATERIALS: Different properties make materials suitable for different uses (properties that can be measured) *Y5 Properties and changes of materials* Sorted into groups according to properties including hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets *Y5 Properties and changes of materials* CHANGING MATERIALS: Some materials will dissolve in a liquid. *(Y5 Properties and changes of materials)* Changes including baking, burning and the reaction of certain chemicals result in new materials.	-The Sun appears to move across the sky. -The Earth, Sun and Moon are approximately spherical. - The Earth is one of eight planets that orbit the Sun. - The Earth orbits the Sun once every year. - The Earth rotates on its own axis once every 24 hours. - The Moon orbits the Earth and looks different at different times of the month. - The seasons change as the Earth's position changes relative to the Sun. - It is due to the rotation of the earth that we experience day and night.		-To be able to explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. - To be able to identify the effects of air resistance, water resistance and friction, that act between moving surfaces. - To be able to recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.	

					(*Y5 Properties and changes of materials*) Dissolving, mixing and changes of state are reversible changes. *(Y5 Properties and changes of materials)* Changes that result in new materials are not usually reversible. *(Y5 Properties and changes of materials)* MIXING AND SEPARATING MATERIALS: Mixtures can be separated by filtering, sieving and evaporating. *(Y5 Properties and changes of materials)* Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and				

					thermal), and response to magnets Know that some materials will dissolve in liquid to Form a solution, and describe how to recover a substance from a solution Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic Demonstrate that dissolving, mixing and changes of state are reversible changes				

					Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.				
YR 6		To be able to describe how living things are classified into broad groups according to common observable characteristics. To be able to describe how living things are classified into broad groups based on similarities and differences, including micro-organisms, plants and animals. To be able to give reasons for classifying plants and animals based on specific characteristics.	Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. To know that oxygen is taken into the blood in the lungs; the blood is pumped by the heart to take oxygen and nutrients to the muscles. Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. To know that some substances and lifestyle choices	To be able to recognise that living things have changed over time. To be able to recognise that fossils provide information about living things that inhabited the Earth millions of years ago. To be able to recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. To be able to identify how animals and plants are		• Recognise that light appears to travel in straight lines. • Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. • Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. • Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. •Know how simple optical instruments			-There are recognised symbols for circuits and their components. - An increase in voltage will cause an increase in current. - Some components can resist the current more than others. - When a battery or cell is connected in a circuit, it provides a push (voltage) that causes electrons (current) flow in a circuit. - For a fixed voltage an increase in resistance will cause a decrease in current. - To be able to associate the

			can have a negative impact on health. Describe the ways in which nutrients and water are transported within animals, including humans.	adapted to suit their environment in different ways. To be able to recognise that adaptation may lead to evolution.		work, e.g. periscope, telescope, binoculars, mirror, magnifying glass etc. -We see light from a source reflected off an object into our eyes. - Shadows and reflections are different.			brightness of a lamp with the number and voltage of cells used in the circuit. - To be able to associate the volume of a buzzer with the number and voltage of cells used in the circuit. - To be able to compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. - To be able to use recognised symbols when representing a simple circuit in a diagram.

Reception Knowledge Overview

Caterpillars to be ordered for Term 4.

Date	Objectives	Ideas for discussion	Possible Practical Activities	Cross Curricular Ideas
Throughout Year CHANGES OF STATE COOKING	Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. Children know about similarities and differences in relation to places, objects, materials and living things.	Cooking – Using an ingredient list to explore different substances… flour, sugar, salt, butter, oil, Changing substances by mixing and stirring and heating. Making porridge? Vocab – grams, litres, ml, kg, ingredients, method, mixing, stirring, heating, cooking	Children follow an ingredients list from a recipe and identify the characteristics of the different materials. Measuring the different quantities using scales/measuring jug/counting. Mixing and stirring ingredients. Describing the process. Heating and cooking ingredients, describing the process. Make porridge, chocolate crispies, sponge cake, biscuits.	DT
Throughout Year FORCES	Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.	What will the magnet stick / attach too? What will it attract? Other magnets – repelling Vocab – Why? Attract, repel , force, push , pull, wood, metal, paper, fabric.	Children investigate different materials the magnets will attach to. Then consider what and why. Try moving objects with the magnet by going from underneath. Try pushing a magnet away from a magnet.	
September /October OURSELVES	They know about similarities and differences between themselves and others, and among families, communities and traditions. They make observations of animals and plants and explain why some things occur, and talk about changes.	What body parts have we got? What are they used for? Looking at hair and eye colour, what variety and what in common? Ourselves project? Good for the start of term? Vocab – limbs, arms, legs, hands, feet, elbows, ankles, shoulders, etc Joints, flex, extend, straighten, bend, pulse, breathing rate, inhale, exhale	Nurse/Doctor visit Using a stethoscope to listen for the heartbeat. Counting the breaths taken by an individual, watching the chest rise and fall. Listening to tummy rumbles! Labelling full body diagrams with locations and names of body parts. Hair and eye colour survey with chart colouring options. Exploring the range of movement in different joints. Exploring whether movement is possible with certain features disabled? (Can you get off the floor without using your hands?)	PE Maths graphing Nurse/Doctor Visit
September Fruit and seeds	They make observations of animals and plants and explain why some things occur, and talk about changes. Children use everyday language to talk about size, describe patterns	Looking at fruits and seeds. Comparing the structure and colour and taste and smell of different fruits and their seeds. . Vocab – seed, fruit, flesh, skin, sweet, juicy, slice, cut,	Tasting fruits. Drawing and naming variety of fruit. Slicing soft fruit. Making graphs of favourite fruits. Identifying seed within fruits.	
September /October SOUND and HEARING	Children recognise that a range of technology is used in places such as homes and schools. They select and	Ears for hearing Making high and low sounds. Making loud and soft sounds.	Playing with instruments in the classroom, experimenting with making different noises. Blowing over bottles to make noises.	Relate to classroom expectations for noise?

	use technology for particular purposes.	Sound insulation. Vocab – sound, noise, note, loud, quiet, soft, gentle, high, low, pitch, block	Exploring different ear muffs to see which best block out sound.	
October SEASONS AUTUMN plants	They make observations of animals and plants and explain why some things occur, and talk about changes. children use everyday language to talk about size, describe patterns	Pumpkin – Halloween. Making pumpkin Soup What are the different parts of a plant called? What variety of plants exist? Investigate different plants in school grounds or in gardeners world. What does a plant need to grow? Can you help a plant to grow? Comparing leaves. Waxy tough leaves better for surviving in cold and wet winter. Softer broad leaves take advantage of all the sun's rays. Leaf collages. Comparing leaves at different times of year. Vocab - Sunlight, water, air, roots, stem, leaves, branches, trunk, Broadleaves vs conifers, Holly and Ivy, Spring, Summer, Autumn, Winter	Label a full size painting/press of a plant. Handle plants pulled out of the ground collecting good describing words for the different parts. Compare different plants in the school grounds, shape and colour of leaves, size of tree/plant, presence of flowers. Scavenger hunts for different characteristics. Leaf pressing and leaf rubbing. Leaf prints. Pressed leaves from different ends of the Autumn term.	Art
November SEASONS COLOUR and LIGHT	Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.	Bonfire Night Colour displays, what things are what colours. Light sources. Sun, candles, bulbs. Mixing paint. Looking through coloured cellophane. Vocab – light, colour, primary colours, secondary colours, reflect	Paint mixing Exploring candles, bulbs and torches. Looking through coloured shpaes/blocks.	Fireworks
November SEASONS CLOTHING WEATHER	Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another.	Clothing – clothes to match weather and environment and jobs. The Environment recognising the change in the seasons. Choosing clothes for different weather conditions.	Talk to teachers about playground duty and what to wear. Recognising the change in weather through the autumn. Dressing toys for different weather days. Thinking about suitable protective clothing to wear for exploring different parts of the local environment.	Percy the Park Keeper

	Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.	Vocab - Water proof, high visibility, insulating/permeable, absorbent, camouflage. Protective kit, steel toe caps, hard hats, bike helmets, warm, cool, ventilation, insulation,		
December TOYS / ELECTRICITY BeeBot	Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.	Danger of electricity. Sorting electric appliances by the room they are used in and by their output, heat, sound, light or movement. Think about battery and mains power, advantages and disadvantages of both. Switches. Christmas lights Vocab – on and off, heat, sound, light, movement,	Investigating battery toys. Finding and using switches.	DT
December SEASONS MATERIALS	Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another.	Wood paper fabric metal. Sorting household objects and toys into their different material groups. Vocab – man made, artificial, natural, hard, soft, transparent, translucent, water proof, absorbent, permeable, impermeable, wood, paper, fabric, metal	Sorting hoops for different toys by material Collages with a variety of different materials. Language for describing and naming different materials.	Christmas Decorations
December TOYS MATERIALS LIGHT	Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.	Comparing dull and shiny objects. Vocab – dark, light, shiny, dull, reflective,	Choosing paper for collages, Exploring mirrors Using a feely bag to explore objects without light.	Art
January WINTER SEASONS - CLOTHES CHANGES OF STATE	They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes. Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems.	Rain – measuring rainfall, testing waterproof clothes, cloud spotting. (Introduce cumulus, cumulonimbus, nimbus, stratus, cirrus) Rainbows. Snow and Hail Playdoh (Made each half term) Cooking – throughout the year Vocab - waterproof, water resistant, rainbows	Test a variety of waterproof fabrics to see which is best at keeping dry. Creating rainbows with water spray and with prisms. Bubble play? Playing with frozen water. Melting ice.	

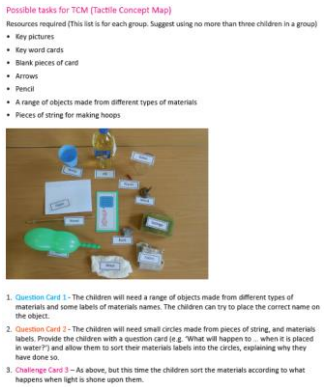
February SEASONS WEATHER	They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes. Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems.	Wind and Clothes continued. Vocab – force, rotation, Beaufort scale, insulation	Testing warmth of clothes in cool wind, comparing school jumper, blazer, waterproof against the wind. Playing with the parachute	Geography
MARCH FARMING – Continuous Provision Ourselves	Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.	Farm animals. What do they produce? What do they consume? Where do they live? (Cows, Sheep, Pigs, Horses?) How do humans change over time? Measuring children through school. Vocab - Cows, Sheep, Pigs, Horses, farm, stable, stall, barn, pen, grass, straw, 'nuts', baby, child, teenager, adult, elderly, tape measure, metres, centimetres.	Use farm animals to look at growth, from calves, lambs, piglets, foals to cows, sheep, pigs, horses. Measuring children through school to recognise their growth.	Geography
MATERIALS – Continuous provision	Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another.	Sand and mud. Sand and mud kitchen, mixing and sticking. How much water is needed? Clay modelling Vocab – liquid, solid, grains, particles, rocks, sticky, smooth, rough, drying,	Children to investigate building with dry sand and wet sand, dry mud and wet mud. Introducing language for these activities. Exploring how strong mud buildings can be? Can they be washed away? Making models from clay and exploring the effects of extra water and baking.	
May MINIBEAST **Caterpillars to be ordered for Term 4.**	Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations	What sort of minibeast do you know? How many legs? Minibeasts – life cycles Vocab - mammal, bird, reptile, fish, insect, swim, walk, crawl, fly, climb, glide, carnivores, herbivores, ominvores, jungle, desert, savannah	Counting legs on animals, relating this to how they move, from snail and slug slime up to centipede and millipede crawl. Life-cycles – Butterfly breeding kit.	Geography

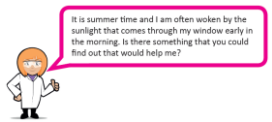
	of animals and plants and explain why some things occur, and talk about changes.			
May SPRING Plants	They make observations of animals and plants and explain why some things occur, and talk about changes. Children use everyday language to talk about size, describe patterns	What are the different parts of a plant called? What variety of plants exist? Investigate different plants in school ground. What does a plant need to grow? Can you help a plant to grow? Comparing leaves at different times of year. Vocab - Sunlight, water, air, roots, stem, leaves, branches, trunk, Broadleaves vs conifers, Holly and Ivy, Spring, Summer, Autumn, Winter	Label a full size painting/press of a plant. Handle plants pulled out of the ground collecting good describing words for the different parts. Compare different plants in the school grounds, shape and colour of leaves, size of tree/plant, presence of flowers.. leaf rubbing. Leaf prints. Pressed leaves from different ends of the Autumn term. Planting sunflowers or spring flowers and beans.(end of term).	The Tiny Seed
June Growing	They make observations of animals and plants and explain why some things occur, and talk about changes. Children use everyday language to talk about size, describe patterns	Looking at fruits and seeds. Comparing the structure and colour and taste and smell of different fruits and their seeds. Vocab – seed, fruit, flesh, skin, sweet, juicy, slice, cut,	Tasting fruits and berries. Drawing and naming variety of fruit. Slicing soft fruit. Making graphs of favourite fruits.	Farm Visit – Strawberry Picking (July)
June FORCES	Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.	Pushes and pulls. Playing with push and pull toys. Pushing and pulling a rope and a stick. Floating and sinking Vocab – push, pull, bend, straighten, cause, effect, friction, air resistant, streamlined,	Modelling with Pipe cleaners Playing with stick puppets Reading pop-up books Language for changing clothes. Playing with air resistant toys and the parachute. Playing with wheeled toy vehicles and non-wheeled toy vehicles. Playing with toy boats and cars.	Reading *The Enormous Turnip*
June SEASONS WEATHER	They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes. Children use everyday language to talk about size, weight, capacity, position, distance, time and money	Sun –solar powered calculators. Sun protection. Vocab – sun rays, light, heat, insulation, evaporation, drying, crystals,	Spotting solar panels on roofs.	PSHE Sun Safety

	to compare quantities and objects and to solve problems.			
July (but maybe for Mother's Day) MATERIALS – Continuous provision	Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another.	Clay modelling Vocab – sticky, smooth, rough, drying,	Introducing language for these activities. Making models from clay and exploring the effects of extra water and baking.	

KS1 (Years 1/2) Knowledge Overview – Rotation A

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Assessment Focus
Term 1 Everyday Materials **KEY SCIENTIST:** Charles Macintosh (176 – 1843)	To be able to distinguish between an object and the material from which it is made. Introduce key scientist	To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock.	To describe the simple physical properties of a variety of everyday materials – using observation.	To compare and group together a variety of everyday materials on the basis of whether they are a natural material ie: found outside; or man-made.	To compare and group together a variety of everyday materials on the basis of their physical properties – using senses of touch and sight.	To compare and group together a variety of everyday materials on the basis of their physical properties - Creating a sorting key with 2 branches – Yes / No	**Everyday Materials:** Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials, including wood, plastic, glass, water and rock. Describe the simple physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials on the basis of their physical properties.
Term 1: Plants Seasonal Change	**Plants:** Depending on the weather and stages of tree development – use primary and secondary sources to investigate and identify some of the common tree types and properties of them: Eg: oak tree – acorn; Horse chestnut tree – conker; Sycamore - sycamore wings etc. Identify 4 different trees to focus on through the year. Plant: daffodils, crocus, alliums **Seasonal Change:** What do we mean by seasons and weather? Establish a timeline. How can we observe and measure the weather – set up a weather station? Measure and observe weather – temperature, wind speed and direction, types of clouds, rain, pond water temperature, how much daylight each week?						**Photos.** **Large floor book – for post-it notes and recording whole class recordings** **Record of plants planted**

Term 2 Animals, including Humans (Yr 1) **KEY SCIENTIST:** Miller Hutchinson (invented first hearing aid) **(ORDER stick insect breeding kit for term 4 – see link below)**	Review previous learning: What do you know about your body? Introduce key scientist. Hook Activity - The aliens have landed!	To identify, name draw and label the basic parts of the human body. Identifying – What are the names of the different parts of our bodies?	To identify, name draw and label the basic parts of the human body. Identifying – What are the names of the different parts of our bodies?	To know which part of the body is associated with each sense. Recording: Children could draw the human body and label where the senses can be found.	Simple test – What can our different senses do? Carousel of senses activities.	Research – How good are the senses of other animals?	**Animals including Humans:** Identify, name draw and label the basic parts of the human body etc To know which part of the body is associated with each sense.
Term 2: **Plants** **Seasonal Change**	**Plants:** Depending on the weather and stages of tree development – use primary and secondary sources to investigate and identify some of the common tree types and properties of them: Eg: oak tree – acorn; Horse chestnut tree – conker; Sycamore - sycamore wings etc. Return to 4 key trees and see the difference from last term. Plant: tulips **Seasonal Change:** What do we mean by seasons and weather? Establish a timeline. How can we observe and measure the weather – set up a weather station? Measure and observe weather – temperature, wind speed and direction, types of clouds, rain, pond water temperature, how much daylight each week?						**Photos.** **Large floor book – for post-it notes and recording whole class recordings** **Record of plants planted**
Term 3 **Everyday Materials** **KEY SCIENTIST:** Martin Brock – Nanotechnology engineer and Xelflex inventor.	Review learning from term 1 How can different materials be grouped? Indoor and outdoor materials? Review key vocabulary – smooth, rough, transparent, solid, liquid etc. Introduce Key scientist	What happens to materials when they are heated and cooled? – Predicting what will happen when chocolate, wax, butter, sugar cube, ice cube are melted – then observing melting	How can we change food materials in the kitchen? – Making ice-cream. Observations of changes that have taken place.	To ask simple questions and recognise that they can be answered in different ways. Generating questions – Investigating different types of paper. Look at the different types of paper to come up with questions about the properties of paper.	Comparing similar materials – Simple test: How well do different kitchen paper towels absorb water?	Assessment task from Kent Scheme 	**Scientific Enquiry:** To be able to ask simple questions. To be able to identify and classify. To be able to perform simple tests.
Term 3: **Plants** **Seasonal Change**	**Plants:** Depending on the weather and stages of tree development – use primary and secondary sources to investigate and identify some of the common tree types and properties of them: Eg: oak tree – acorn; Horse chestnut tree – conker; Sycamore - sycamore wings etc. Return to 4 key trees and see the difference from last term. Plant: No flowers to plant - too cold **Seasonal Change:** What do we mean by seasons and weather? Establish a timeline. How can we observe and measure the weather – set up a weather station? Measure and observe weather – temperature, wind speed and direction, types of clouds, rain, pond water temperature, how much daylight each week?						**Photos.** **Large floor book – for post-it notes and recording whole class recordings** **Record of plants planted**

Term 4: Animals – Including humans (Animals) **Key Scientist:** Amy Vedder (1951 -)	Review previous learning: To record data in a table. Game – Alien table Set up ladybird breeding	To identify and name a variety of common animals that are birds, fish, amphibians, reptiles and mammals. Naming and identifying animals	To describe and compare the structure of a variety of common animals. -Pond dipping	Naming and identifying - Describing the structures of common animals and pets. -Classifying animals	Naming and classifying – Which animals are herbivores, carnivores and omnivores?	Identifying and naming - Describing the structures of pets	
Term4: Plants Seasonal Change	**Plants:** Depending on the weather and stages of tree development – use primary and secondary sources to investigate and identify some of the common tree types and properties of them: Eg: oak tree – acorn; Horse chestnut tree – conker; Sycamore - sycamore wings etc. Return to 4 key trees and see the difference from last term. Plant: Wildflower seed mixtures; sunflowers, poppies **Seasonal Change:** What do we mean by seasons and weather? Establish a timeline. How can we observe and measure the weather – set up a weather station? Measure and observe weather – temperature, wind speed and direction, types of clouds, rain, pond water temperature, how much daylight each week?						**Photos.** **Large floor book – for post-it notes and recording whole class recordings** **Record of plants planted**
Term 5: Everyday Materials (Year 1) **Key Scientist:** Chester Greenwood (1858-1937) (Inventor of Earmuffs)	Review learning from term 1 and 2 How can different materials be grouped? Indoor and outdoor materials? How can materials be changed? Do all materials have the same properties? Review key vocabulary – smooth, rough, transparent, solid, liquid etc. Introduce Key scientist	Record simple data in order to answer a question: Problem-solve/simple test – Which fabric will be best for a jacket for a child? Testing materials to see how waterproof they are.	Problem-solve/simple test – Which fabric will be best for a jacket for a child? Testing materials to see how strong they are. Conclusion of best material.	To record simple data in order to answer a question. Simple test – Which materials make the best crash mat for Humpty Dumpty?	Testing materials for Humpty Dumpty's crash mat.	Assessment: Enquiry Challenge: 1. The Challenge:  Kent Scheme – Assessment Yr 1 – Enquiry Challenge Everyday Uses of Materials	
Term 5: Plants Seasonal Change	**Plants:** Depending on the weather and stages of tree development – use primary and secondary sources to investigate and identify some of the common tree types and properties of them: Eg: oak tree – acorn; Horse chestnut tree – conker; Sycamore - sycamore wings etc. Return to 4 key trees and see the difference from last term. Plant: Nigella seeds; Nasturtiums **Seasonal Change:** What do we mean by seasons and weather? Establish a timeline. How can we observe and measure the weather – set up a weather station? Measure and observe weather – temperature, wind speed and direction, types of clouds, rain, pond water temperature, how much daylight each week?						
Term 6 Plants - Trees **Seasonal Change - review**	Identify and describe the basic structure of a variety of common flowering plants. including trees.	To identify and describe roots. Observing – How many different roots can be found? Can we	To identify and describe trunks. Observation - How are the trunks of trees	To identify and describe trunks. Measuring – How tall are the trees?	To describe and identify trees by looking observing their leaves.	Reviewing photographs of the plants and trees throughout the year. Look at how bulbs and seeds have grown into flowers.	**PLANTS:** To identify and describe the basic structure of a variety of common

KEY SCIENTIST: Joseph Banks (1743 – 1820)	As a class gather children' questions about what they want to know about plants in the local habitats. See if they can name any. Begin to review some of the differences they have spotted through out the year.	describe what they look like close-up?	similar and different from each other? -Bark rubbings - Casts of bark	Measuring - How far is it around the trunk of the tress?	Deciduous and evergreen - focus on evergreen trees - leaf rubbings	Reconsider which month they didn't plant in. Look through and add to big floor books on plants and seasonal change. Review the differences and changes that have taken place.	plants including roots, stem/trunk, leaves and flowers. To identify and names some plants.
Term 6: **Plants** **Seasonal Change**	**Plants:** Depending on the weather and stages of tree development – use primary and secondary sources to investigate and identify some of the common tree types and properties of them: Eg: oak tree – acorn; Horse chestnut tree – conker; Sycamore - sycamore wings etc. Return to 4 key trees and see the difference from last term. Plant: forget me not seeds. **Seasonal Change:** What do we mean by seasons and weather? Establish a timeline. How can we observe and measure the weather – set up a weather station? Measure and observe weather – temperature, wind speed and direction, types of clouds, rain, pond water temperature, how much daylight each week?						

LKS2 (Years 3/4) Knowledge Overview – Rotation A

	Week 1	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**	**Assessment Focus**
Term 1 Plants (Yr 3) **Key Scientist:** Jan Ingenhousz (1730-1799)	Review previous learning about plants – what do you know already? To be able to identify and describe the function of the roots. Observation – What do the roots of plants look like close up? Simple test/modelling – How does the number of roots affect the amount of water that is absorbed?	To be able to investigate the ways in which water is transported within plants. Simple test – What happens to the leaves of plants when their roots are placed in dye?	To be able to identify and describe the function of the stem. Observation - What does the stem do? What does the stem look like? How strong are different stems? Observation – Can we find different ways by which plants use their stems to cling to other plants?	To be able to identify and describe the function of the leaves. Investigation over time – What happens to plants that have no light? Review plant investigation set up in wk 1 To be able to explore the requirements of plants for life and growth (air, light, water, nutrients from soil).	To be able to identify and describe the function of the flower. Observation – What do the parts in a flower do? Observation – How can we prove that the flower is linked to the plant making more plants?	To be able to identify and describe the function of the flower. Observation – Can you work out by looking at the seed how it will be dispersed? Survey - What type of seeds and fruits can be found?	

	(Set up investigation for plants in different locations relating to light and Investigation over time – What affect do nutrients have on the plant?)		Simple test - How can we prove that stems transport water?	Review plant investigation set up in wk 1			
Term 1: **Plants (Yr 3)** **Living Things and Their Habitats (Yr 4)**	**Plants:** Observation and measurement - How much light does a tree capture at different times in the year? Observation over time – When do plants grow their flowers? - identify the plants at particular times of the year; keep a diary; a page for each species of tree. They can stick specimens (after being pressed for a couple of weeks) in the class diary/floor book. For each specimen they can show how flowers are arranged on the stalk, their colours, shapes. Investigation over time – How do the flowers change over time? **Living Things and their habitats:** Recognise that living things can be grouped in a variety of ways Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment Recognise that environments can change and that this can sometimes pose dangers to living things.						
Term 2 Forces and Magnets **Key Scientist:** William Gilbert (1544 – 1603)	Review any previous knowledge and learning about forces. Illustrative fair test – How does the type of surface on the table affect the speed of the tub travelling on it?	To be able to compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. Recognising how science affects our lives - What are magnets used for? Classification – Which materials are attracted to magnets?	To be able to compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. Comparative test – Which materials can magnets attract through? Problem-solving – Make a fridge magnet	To be able to notice that some forces need contact between two objects, but magnetic forces can act at a distance. Comparative test - Which magnet is the strongest?	To be able to notice that some forces need contact between two objects, but magnetic forces can act at a distance. Problem-solving – making a compass	To be able to predict whether two magnets will attract or repel each other, depending on which poles are facing. Exploring – Attracting and repelling	
Term 2: **Plants**	**Plants:** Observation and measurement - How much light does a tree capture at different times in the year? Observation over time – When do plants grow their flowers? - identify the plants at particular times of the year; keep a diary; a page for each species of tree. They can stick specimens (after being pressed for a couple of weeks) in the class diary/floor book. For each specimen they can show how flowers are arranged on the stalk, their colours, shapes. Investigation over time – How do the flowers change over time? **Living Things and their habitats:** Recognise that living things can be grouped in a variety of ways Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment Recognise that environments can change and that this can sometimes pose dangers to living things.						
Term 3 Yr 4 - Animals including Humans (Teeth and Digestion)	Review what they know all ready about animals and humans. Identify the different types of teeth in humans and their simple functions.	Identify the different types of teeth in humans and their simple functions. Simple test – What are the functions of the	To be able to describe the simple functions of the basic part of the digestive system in humans. Simple test – What happens when we chew food?	To be able to describe the simple functions of the basic part of the digestive system in humans. Modelling - The stomach	To be able to describe the simple functions of the basic part of the digestive system in humans.	To be able to construct and interpret a variety of food chains, identifying producers, predators and prey. Deep thinking time – What are food-chains?	

Key Scientist: William Beaumont (1785-1853)	Observing – How many different types of teeth have we got? What are their functions?	different types of teeth?			Introducing the whole digestive system Drama/modelling – Acting out the digestive system		
Term 3: Plants	**Plants:** Observation and measurement - How much light does a tree capture at different times in the year? Observation over time – When do plants grow their flowers? - identify the plants at particular times of the year; keep a diary; a page for each species of tree. They can stick specimens (after being pressed for a couple of weeks) in the class diary/floor book. For each specimen they can show how flowers are arranged on the stalk, their colours, shapes. Investigation over time – How do the flowers change over time? **Living Things and their habitats:** Recognise that living things can be grouped in a variety of ways Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment Recognise that environments can change and that this can sometimes pose dangers to living things.						
Term 4 Rocks and Soils **Key scientist: Florence Bascom** (Geologist who studied the origin and formation of mountains)	To be able to compare and group together different kinds of rocks on the basis of their appearance. Observation – What do the different rocks look like? Where are the rocks in the world? Survey - Which are the rocks near our school?	To be able to compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Modelling – How were rocks formed? Sedimentary rocks modelling. Metamorphic rocks modelling. Igneous rocks modelling. Chewitt rock cycle	To be able to compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Comparative test – Which rock is the most permeable? Comparative test – How hard are different rocks?	To be able to describe in simple terms how fossils are formed when things that have lived are trapped within rock. *Modelling - How are fossils made?*	To be able to recognise that soils are made from rocks and organic matter. *Observation – What are soils made from?* Classifying – Which types of soil do you have? Problem-solving – How can we separate the different parts that make up a soil?	To be able to recognise that soils are made from rocks and organic matter. Comparative test – How much water do different soils absorb? Modelling – How can the way the farmer uses the field affect how much water is absorbed by the soil?	Pupils can: Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties Describe in simple terms how fossils are formed when things that have lived are trapped within rock Recognise that soils are made from rocks and organic matter.
Term 4: Plants	**Plants:** Observation and measurement - How much light does a tree capture at different times in the year? Observation over time – When do plants grow their flowers? - identify the plants at particular times of the year; keep a diary; a page for each species of tree. They can stick specimens (after being pressed for a couple of weeks) in the class diary/floor book. For each specimen they can show how flowers are arranged on the stalk, their colours, shapes. Investigation over time – How do the flowers change over time? **Living Things and their habitats:** Recognise that living things can be grouped in a variety of ways Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment Recognise that environments can change and that this can sometimes pose dangers to living things.						
Term 5 Basic First Aid **Key Scientists:**	St John's First Aid: Emergencies and calling for help	St John's First Aid: Basic Life Support	St John's First Aid: Head injuries	St John's First Aid: Bites and stings	St John's First Aid: Asthma	St John's First Aid: Introduction to bleeding – nose bleed and cut/graze	

Robert Wood Johnson (Inventor of first, First Aid Kit)							
Term 5: Plants	**Plants:** Observation and measurement - How much light does a tree capture at different times in the year? Observation over time – When do plants grow their flowers? - identify the plants at particular times of the year; keep a diary; a page for each species of tree. They can stick specimens (after being pressed for a couple of weeks) in the class diary/floor book. For each specimen they can show how flowers are arranged on the stalk, their colours, shapes. Investigation over time – How do the flowers change over time? **Living Things and their habitats:** Recognise that living things can be grouped in a variety of ways Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment Recognise that environments can change and that this can sometimes pose dangers to living things.						
Term 6 Living Things and their habitats. Key Scientists: Carl Linnaeus (1707-1778)	To be able to recognise that living things can be grouped in a variety of ways. Survey – How many different animals can we find in the wildlife area? Classifying – How can we classify different animals? Observation enquiry – How are the animals suited to where they live?	To be able to recognise that living things can be grouped in a variety of ways. Identifying – Can you use the leaves to identify the name of the tree? Classifying plants – Which groups can we place plants into?	To be able to explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Practicing a skill – Using a classification key Identifying trees with a classification key	To be able to explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. 2. Creating a classification key for trees.	To be able to recognise that environments can change and that this can sometimes pose dangers to living things. Deep thinking time – How does a change in the environment affect the things that live there? Research – What changes have affected environments throughout the world?	To be able to recognise that environments can change and that this can sometimes pose dangers to living things. Research - Planning an even better nature area	Pupils can: Recognise that living things can be grouped in a variety of ways Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment Recognise that environments can change and that this can sometimes pose dangers to living things.
Term 6: Plants	**Plants:** Observation and measurement - How much light does a tree capture at different times in the year? Observation over time – When do plants grow their flowers? - identify the plants at particular times of the year; keep a diary; a page for each species of tree. They can stick specimens (after being pressed for a couple of weeks) in the class diary/floor book. For each specimen they can show how flowers are arranged on the stalk, their colours, shapes. Investigation over time – How do the flowers change over time?						

UKS2 (Years 5/6) Knowledge Overview – Rotation A

	Week 1	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**	**Assessment Focus**
Term 1 Animals including humans (Year 6)	Review previous learning from early years. Introduce key scientist.	To be able to describe the ways in which nutrients and water are transported within	To be able to recognise the impact of diet, exercise, drugs and	To be able to recognise the impact of diet, exercise, drugs and lifestyle on the	To be able to recognise the impact of diet, exercise, drugs and	To be able to recognise the impact of diet, exercise, drugs and lifestyle on	

Nutrition / Diet / exercise / lifestyle **Key scientist: Santorio Santorio (Doctor who invented an instrument to measure pulse accurately using a pendulum and did the first scientific study of the metabolism)**	To be able to identify and name the main parts of the human circulatory system, and explain the functions of the heart, blood vessels and blood. Hook – The Fitness Club!	animals, including humans. Research – Why do we need to drink water?	lifestyle on the way their bodies function. Hook - Creating a wellbeing clinic. Researching drugs.	way their bodies function. Researching exercise.	lifestyle on the way their bodies function. Researching diets	the way their bodies function. PPT / Brochure pulling all information together for Wellbeing Clinic	
Term 2 Forces friction, air resistance, gravity. (Year 5) **Key scientist: Sir Isaac Newton (1642 – 1727)**	Review learning about forces and friction from previous years. Introduce key scientist. To be able to explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Hook – Transport scientists! What do you want to know?	To be able to identify the effects of air resistance that act between moving surfaces. Illustrative fair-test – How does the surface area of a piece of paper affect how quickly it falls? Illustrative fair-test – How does the surface are of the blades affect the time it takes the spinner to fall?	To be able to identify the effects of air resistance that act between moving surfaces. Investigative fair-test– What affects how well a parachute falls?	To be able to identify the effects of friction between moving surfaces. Hook – Where can we find examples of friction? Skill-focussed activity – Using a force meter Illustrative fair-test investigation – Which trainer provides the best grip? Investigative fair-test Investigation – What affects how well the tub travels?	To be able to identify the effects of air resistance that act between moving surfaces. What affects how well an object fired from a trebuchet will travel? What affects how far the rocket will fly when blown away from the straw? What affects how far the rocket will travel?	To be able to identify the effects of water resistance that act between moving surfaces. Comparative test – How does the shape of an object affect how it moves through water? Problem-solving – Can you make the blue tac fall in … seconds? Problem-solving 2 – Make a submarine that will transport a person to the bottom of the cylinder in … seconds. Pattern-seeking – How does the mass of a boat affect the depth it travels below the water surface?	
Term 3 **Properties and changes of materials (Part two - Year 5)** Key Scientist: Jamie Garcia	Review learning about materials and states of matter from previous years. Introduce key scientist. To be able to understand that some materials will	To be able to use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through	To be able to use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through	To be able to explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including	To be able to explain that some changes result in the formation of new materials, and that this kind of change is not usually	To be able to explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible,	

https://bpes.bp.com/super-scientists-jamie-garcia-primary	dissolve in liquid to form a solution, and describe how to recover a substance from a solution. Investigative fair-test – What affects how well sugar dissolves? Evaluating an investigation Problem-solve – What are the best conditions for dissolving sugar in the fastest time?	filtering, sieving and evaporating. To be able to demonstrate that dissolving, mixing and changes of state are reversible changes. Simple test – How can we separate mixtures of different solids? Explore – Separating through filtering Fair-test – What is the best material for filtering?	filtering, sieving and evaporating. Simple test – Separating through evaporation Problem-solving – How could you separate water from salt if your only heat source was the Sun?	changes associated with burning and the action of acid on bicarbonate of soda. Simple tests – Which changes cannot be easily reversed? 1. Simple test – What happens when we mix water with plaster of Paris? Can you separate them? 2. Simple test – What happens to egg white when it is heated? 3. Simple test – What happens when we mix bicarbonate of soda with vinegar?	reversible, including changes associated with burning and the action of acid on bicarbonate of soda. Simple test – What happens to a material when it burns? Deep thinking time – Where does the water come from? How was the flame extinguished?	including changes associated with burning and the action of acid on bicarbonate of soda. Investigative fair test – What affects how quickly carbon dioxide is created in the reaction between a vitamin tablet and water?	
Term 4 Animals - Circulatory System **Key Scientist:** **William Harvey (1578 – 1657)**	Review learning about the body from previous years. Introduce key scientist. To be able to identify and name the main parts of the human circulatory system, and explain the functions of the heart, blood vessels and blood. Hook – The Fitness Club! Explore - What is the function of the heart?	To be able to identify and name the main parts of the human circulatory system, and explain the functions of the heart, blood vessels and blood. Modelling the heart and circulatory system An analogy Drama – Be the heart Modelling - Make a heart – a model of one of the chambers	To be able to identify and name the main parts of the human circulatory system, and explain the functions of the heart, blood vessels and blood. Comparative test – What happens to the rate at which our hearts beat when we perform different exercises? Hook – Begin with evidence	To be able to identify and name the main parts of the human circulatory system, and explain the functions of the heart, blood vessels and blood. Observation – How many times does your heat beat every minute? Pattern-seeking – Is their a relationship between the type of exercise that you do and the number of heart beats per minute?	To be able to identify and name the main parts of the human circulatory system, and explain the functions of the heart, blood vessels and blood. Researching using secondary sources – What are the functions of blood?	To be able to identify and name the main parts of the human circulatory system, and explain the functions of the heart, blood vessels and blood. Modelling the components of blood - Make your own 'blood' Teacher modeling the function of platelets	
Term 5 Earth and Space **Key scientist:**	Review knowledge about Earth and Space. What do they know already? Introduce key scientist.	To be able to describe the movement of the Earth, and other planets, relative to the	To be able to describe the Sun, Earth and Moon as approximately spherical bodies.	To be able to describe the movement of the Moon relative to the Earth.	To be able to use the idea of the Earth's rotation to explain day and	To be able to use the idea of the Earth's rotation to explain day and night and the	

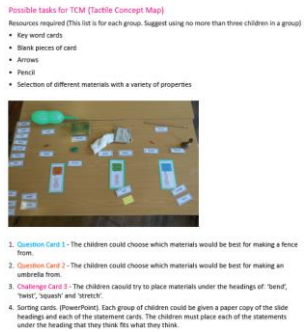
Professor Brian Cox (1968 -)	Hook - Information for another planet! What do you want to know? What do you want to know? To be able to describe the movement of the Earth, and other planets, relative to the Sun in the solar system. What is in our solar system? How large are they? How far apart are they? Drama/modelling - Acting out the order of the planets in our solar system What is at the centre of our solar system? Modelling - Make a model of the solar system Modelling - Make a scaled model of the solar system	Sun in the solar system. Research - What is it like on the other planets in the solar system?	Deep thinking time - How can we prove the shape of the Earth, Sun and Moon?	Secondary sources - What is the Moon like? Deep thinking time - How does the shape of the Moon appear to change over time? Modelling- How does the shape of the Moon appear to change over time?	night and the apparent movement of the Sun across the sky. Modelling – How do we have day and night on planet Earth?	apparent movement of the Sun across the sky. Problem-solving – How can we use the Sun to tell the time? Pattern-seeking investigation – How does the length of shadows change over day?	
Term 6 Evolution/Inheritance (Year 6) **Key scientist:** **Charles Darwin (1809 – 1882)**	Review what they know already about evolution. Link to fossils from LKS2. Introduce key scientist. To be able to recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. Deep thinking time – How do we know about living things that have lived in the past?	To be able to recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Key questions: Are all siblings of living things identical? Children' own family tree Creating a family tree for an animal	To be able to identify how animals are adapted to suit their environment in different ways and that adaptation may lead to evolution. Deep thinking time – How are birds suited to survive in the habitat in which they live? Deep thinking time– How is it that birds have the right features to help them survive where they live?	To be able to identify how animals are adapted to suit their environment in different ways and that adaptation may lead to evolution. Research – How do different animals use camouflage to survive? Model/experiment - The worms have escaped!	To be able to identify how animals are adapted to suit their environment in different ways and that adaptation may lead to evolution. Deep thinking time – What must all living things be able to do in order to survive? Deep thinking time – Which feature of a butterfly make it	To be able to identify how animals are adapted to suit their environment in different ways and that adaptation may lead to evolution. Deep thinking time - Which animal would survive? Key question – Which characteristic would help you to survive if you were a stag beetle?	

	Hook – Darwin's thinking path Observation – What do you think the fossil is? Modelling -Create your own fossil record Hook – The Piltdown Man hoax		Model/Experiment – What are different types of beaks suited for? Model/Experiment – Which shape feet are best for swimming?		good at surviving where it lives? Research - How are animals suited to where they live?	To be able to identify how plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. Deep thinking time – How are plants suited to, and adapted to their environment? Problem-solving – Design a plant to survive the catastrophe Research – How have different plants around the world evolved to survive?	
Term 6 Animals including humans (Year 5 – reproduction) **Key scientist: Professor Robert Winston (1940 -)**	Review previous learning about animals including humans, their off-spring and young. Introduce key scientist. To be able to describe the changes as humans develop from birth to old age. Hooking the children Raising questions To be able to describe the changes as humans develop from birth to old age. Research – How long are the gestation periods of different animals?	To be able to describe the changes as humans develop from birth to old age. Pattern-seeking – Is their a relationship between the mass of adult animal and the length of the gestation period? Research Developing a conclusion	To be able to describe the changes as humans develop from birth to old age. Data analysis – How does the weight of a baby change? Data analysis – How does the length of a baby change over time?	To be able to describe the changes as humans develop from birth to old age. Survey – What is the height of children of different ages?	To be able to describe the changes as humans develop from birth to old age. Puberty – What happens to the human body during puberty?	To be able to describe the changes as humans develop from birth to old age. Research - Becoming old – What happens to adults as they become older?	

KS1 (Years 1/2)Knowledge Overview – Rotation B

	Week 1	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**	**Assessment Focus**

Term 1 **Plants** **(Yr 2 with review of key prior learning for Yr 1's)** **Key Scientist:** Angie Burnett	Introduce Key scientist: What do you know about plants and trees? Revise and identify the basic structure of a variety of common flowering plants – roots, stem, leaves, flower etc. Looking at seeds and bulbs – linking they both grow into plants.	To be able to observe how bulbs grow into mature plants. Comparative test - What do bulbs need so that can grow healthily? Plant inside : Amaryllis and Paperwhites (narcissi) indoors Plant outside: Onion bulbs outside.	To be able to observe and describe how seeds grow into mature plants. Investigation over time – Do seeds need water so that they can grow? Plant inside: Fast-growing seeds (e.g. white mustard, rocket, flax, mung beans or radishes. Plant outside: Strawberry plants in allotment. Lettuce seeds. Look at seeds / bulbs planted form previous week.	To be able to observe and describe how seeds grow into mature plants. Investigation over time – Do all seeds germinate in the same way? Plant: sunflower seeds and broad bean seeds inside. Look at seeds / bulbs planted form previous week.	To be able to find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. Investigation over time – What type of temperature do plants need so that they can grow? Need: 4 pot plants of the same species.	To be able to find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. Investigation over time – Do plants need light so that they can grow? Need: 4 pot plants of the same species, but one that could have one leaf or just half of it covered with an opaque bag.	Pupils can: Observe and describe how seeds and bulbs grow into mature plants Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. **Photos.** **Large floor book – for post-it notes and recording whole class recordings** **Record of plants planted**
Term 1 **Living things and their habitats** **(Yr 2)**	Deep thinking time – Which habitats do you know of on our amazing planet Earth? What do you want to know about habitats? Survey – How many different living things can we find? Identifying – What are different habitats like? Mark out a range of habitats in the school ground that you would like the children to study over the year (these can include microhabitats). Visit each of the habitats with the children. Investigation over time - Do habitats change during a year? **Light.** Throughout the year record examples of when you have seen plants do something that will improve the amount of light they are able to have: e.g. growing leaves (how big, how many?), climbing up walls or other plants, growing at times of the year when other plants are not covering them with their leaves (e.g. bluebells), and growing higher to reach the sunlight..						**Photos.** **Large floor book – for post-it notes and recording whole class recordings** **Record of plants planted**
Term 2 **Uses of Everyday Materials** **KEY SCIENTIST: Charles Goodyear (1800 – 1860)**	Review previous learning about materials from Yr 1 by identifying what an object is and what it is made from. Different types of materials and what they are used for and why. Introduce Key Scientist: Charles Goodyear and rubber.	Identify and compare the suitability of a variety of everyday materials for particular uses. Simple test– Which material is best for the bottom of children's school shoes? Testing: bounciness and grip	Identify and compare the suitability of a variety of everyday materials for particular uses. Survey – what are the uses of wood? Simple tests – strength, hardness, weight, ease of putting in nails.	Identify and compare the suitability of a variety of everyday materials for particular uses. Survey – what are the uses of plastic? Simple test – How flexible are plastics?	Identify and compare the suitability of a variety of everyday materials for particular uses. Simple test – Which tights are the stretchiest?	Identify and compare the suitability of a variety of everyday materials for particular uses. Simple test – Which material is best for blocking a hole in a bucket?	**Uses of everyday materials:** Ability to Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.
Term 2 **Plants**	**Plants:** observe and describe how seeds grow into mature plants - plants sown in the allotment; Look to see if there are any flowering plants out in the school grounds.						**Photos.**

Living Things and their Habitats	**Plant:** Blueberry bush. **Living Things and their Habitats:** Investigation over time - Do habitats change during a year? Investigation over time - Does the number of animals found in a habitat change? **Light.** Throughout the year record examples of when you have seen plants do something that will improve the amount of light they are able to have: e.g. growing leaves (how big, how many?), climbing up walls or other plants, growing at times of the year when other plants are not covering them with their leaves (e.g. bluebells), and growing higher to reach the sunlight..						**Large floor book – for post-it notes and recording whole class recordings** **Record of plants planted**
Term 3 **Animals including humans – basic needs and keeping healthy (Yr 2)** **Key Scientist:** Florence Nightingale	Review previous learning: What do you know about your body? Introduce key scientist. To identify, name draw and label the basic parts of the human body. Identifying – What are the names of the different parts of our bodies?	To be able to find out about and describe the basic needs of animals, including humans, for survival (water, food and air). A healthy lifestyle Animals have basic needs	To know the importance for humans of eating the right amounts of different types of food. Classifying – Which foods make a healthy diet?	To know the importance for humans of exercise. Importance of exercise **Explore - What happens when you exercise?** **Investigate – Which exercise makes you puff the most?**	To know the importance to humans of hygiene. Survey – How often do we wash ourselves? Keeping food clean.	Use one lesson this term for work on plants and living things.	Pupils can: grow into adults Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.
Term 3 **Plants** **Living Things and their Habitats**	**Plants:** observe and describe how seeds grow into mature plants - plants sown in the allotment; Look to see if there are any flowering plants out in the school grounds. **Plant:** No planting – too cold for outdoor direct planting. **Living Things and their Habitats:** Investigation over time - Do habitats change during a year? Investigation over time - Does the number of animals found in a habitat change? **Light.** Throughout the year record examples of when you have seen plants do something that will improve the amount of light they are able to have: e.g. growing leaves (how big, how many?), climbing up walls or other plants, growing at times of the year when other plants are not covering them with their leaves (e.g. bluebells), and growing higher to reach the sunlight..						**Photos.** **Large floor book – for post-it notes and recording whole class recordings** **Record of plants planted**
Term 4 Uses of Everyday Materials KEY SCIENTIST: **Leo Hendrik Baekeland (1863 - 1944)** **(ORDER stick insect breeding kit for term 5 – see link below)**	Review learning from last term about everyday uses of materials. Introduce Key Scientist: **Leo Hendrik Baekeland (1863 -1944)**	Identify and compare the suitability of a variety of everyday materials for particular uses. Simple test – Which material is best at letting light through?	Identify and compare the suitability of a variety of everyday materials for particular uses. Simple test– On which surface will the car travel the furthest?	Find out how the shapes of solid objects made form some materials can be changed by squashing, bending, twisting and stretching. Exploring – How well can we change the shapes of some solid objects	Identify and compare the suitability of a variety of everyday materials for particular uses. Problem-solving - Applying knowledge to make a product -	Assessment task from Kent Scheme  Possible tasks for TCM (Tactile Concept Map) Resources required (This list is for each group. Suggest using no more than three children in a group) • Key word cards • Blank pieces of card • Arrows • Pencil • Selection of different materials with a variety of properties 1. Question Card 1 - The children could choose which materials would be best for making a fence from. 2. Question Card 2 - The children could choose which materials would be best for making an umbrella from. 3. Challenge Card 3 - The children caould try to place materials under the headings of: 'bend', 'twist', 'squeeze' and 'stretch'. 4. Sorting cards: (PowerPoint). Each group of children could be given a paper copy of the slide headings and each of the statement cards. The children must place each of the statements under the heading that they think fits what they think.	**Uses of everyday materials**: Ability to find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. **Scientific enquiry:** to gather and record data to help in answering questions. to ask simple questions and recognise that they

							can be answered in different ways. to perform simple tests.
Term 4: **Plants** **Living Things and their Habitats**	**Plants:** observe and describe how seeds grow into mature plants - plants sown in the allotment; Look to see if there are any flowering plants out in the school grounds. **Plant:** Potatoes; Beetroot **Living Things and their Habitats:** Investigation over time - Do habitats change during a year? Investigation over time - Does the number of animals found in a habitat change? **Light.** Throughout the year record examples of when you have seen plants do something that will improve the amount of light they are able to have: e.g. growing leaves (how big, how many?), climbing up walls or other plants, growing at times of the year when other plants are not covering them with their leaves (e.g. bluebells), and growing higher to reach the sunlight..						**Photos.** **Large floor book – for post-it notes and recording whole class recordings** **Record of plants planted**
Term 5 Animals, including Humans - offspring (Yr 2) KEY SCIENTIST: David Attenborough (1926 -)	Review previous learning. Introduce Key Scientist To know that animals have offspring that grow into adults. Hook – Creating a wildlife workshop **Set up stick insect breeding kit.**	To know that animals have offspring that grow into adults. Observing and recording the lifecycle of animals	To know that animals have offspring that grow into adults. Eggs of minibeasts: Egg hunt – Spring to late summer.	To know that human offspring grow into adults. Stages of human development Visiting baby. Investigating children's clothes. Studying photos of humans of different ages	To know that human offspring grow into adults. Measuring body parts of children of different ages. Construct a large bar chart for the wall of person's height against ages. Add in details of the class, teachers, parents and grand parents. Children use this to try and work out at what age people typically stop growing and relate this to when they are able to reproduce and why humans need to be big in order to have babies	Use one lesson this term for work on Plants / Living Things and their habitats.	Pupils can: Notice that animals, including humans, have offspring which grow into adults
Term 5 **Plants** **Living Things and their Habitats**	**Plants:** observe and describe how seeds grow into mature plants - plants sown in the allotment; Look to see if there are any flowering plants out in the school grounds. **Plant:** Herbs; Tomato plants **Living Things and their Habitats:** Investigation over time - Do habitats change during a year? Investigation over time - Does the number of animals found in a habitat change? **Light.** Throughout the year record examples of when you have seen plants do something that will improve the amount of light they are able to have: e.g. growing leaves (how big, how many?), climbing up walls or other plants, growing at times of the year when other plants are not covering them with their leaves (e.g. bluebells), and growing higher to reach the sunlight..						

Term 6 Living things and their Habitats **Plants – Flowers and leaves** **KEY SCIENTIST: Steve Backshall (1973 -)**	Reviewing learning about habitats from throughout the year – looking at floor book. Introduce key scientist. Observation enquiry – Why would an animal live in that habitat?	To be able to identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. Pattern-seeking enquiry - Which caterpillar will survive? Survey – Which animals are camouflaged to blend in their habitats?	To be able to identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. Survey - Where is the most popular place for animals to live? Deep thinking time – How do we know that plants are living things?	To be able to describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food. Observation enquiry – What are animals eating? Food-chain headbands Simple tests – How does a habitat provide for the needs of the plants that live there?			Pupils can: Explore and compare the differences between things that are living, dead, and things that have never been alive Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. Identify and name a variety of plants and animals in their habitats, including micro-habitats Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.
Term 6 **Plants (Yr 1)** **Key scientist: Barbara**				Reviewing learning about Plants from throughout the year – looking at floor book.	To identify and describe flowers. Observing – How many different types of flowers can be found? Can we	To identify and describe flowers. Observing – How many different types of flowers can be found? Can we use the	Pupils can: Identify and name a variety of common plants, including garden plants, wild plants

McClintock (1902 – 1992)					use the flower to work out the name of the plant? -drawing the flowers	flower to work out the name of the plant? -drawing the flowers and comparing to the previous week	and trees, and those classified as deciduous and evergreen

***Stick insect breeding kit website for PALMER CLASS – needs ordering in Term 4 for Term 5!! https://www.insectlore.co.uk/living-twig-stick-insect-kit.html**

LKS2 (Years 3/4) Knowledge Overview – Rotation B

	Week 1	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**	**Assessment Focus**
Term 1 Sound **Key Scientist:** James Edward Maceo West (b.1931)	What is sound? -Review what they can remember about materials. -Introduce Key Scientist - Describe what sound waves are • Describe how we see sounds • Explain how we can stop sound	How are different sounds produced? Describe how sounds are produced • Describe ways that different sounds can be made • Make your own instrument	What are frequency and pitch? Describe what the pitch of a sound is • Describe ways to change the pitch of a sound • Give example of objects that produce high and low pitch sounds	What do we mean by amplitude of sound? Describe what we mean by the amplitude of sound • Describe how to change the amplitude of a sound • Give examples of high amplitude and low amplitude sound	How do scientists design objects that use sound? Explain what the science of acoustics involves • Describe how scientists dampen noise that is not wanted • Describe how engineers build venues to improve sound quality	What are some of the uses of sound? Explain how a string telephone works • Describe how loudspeakers and microphones work • Explain how animals use echolocation	
Term 2 Light **Key Scientist:** Percy Shaw (inventor of the cats eye)	What is light and where does it come from? -Introduce key scientist Describe what light is and where it comes from • Explain what light and dark are • Describe how we can measure levels of light	What is reflection and how can we use it? Describe what reflection is • Describe what happens to the direction of light when it reflects • Give uses of reflection	What are shadows? -Describe what a shadow is. - Recognise that shadows are formed when light from a light source is blocked by a solid object.	What makes shadow lengths different? - Find patterns in the way that the size of shadows change. - The size of shadows change according to the size and shape of objects and distance from the light source.	What makes light from the sun dangerous? -review UV investigation. - Recognise that light from the sun can be dangerous and that there are ways to protect the eyes.	-What are some uses of light? • Explain how a periscope works • Describe how lenses can spread out and concentrate light - Where do different colours come from?	

			- Some materials block the light and a shadow is formed. (set up UV light investigation)	- Shadows and reflections are different. • Describe how light is used in shadow puppetry	- to know that Sunlight can be dangerous.	• Describe how white light can be used to make colours • Describe how base colours of light can be made new colours • Explain how rainbows are created	
Term 3 (Yr 3) Animals including Humans – (Skeletons and Movement) **Key Scientist:** Marie Curie (1867-1934)	Review what they know about the human body parts from year 1 and year 2. Introduce key scientist: What are the major bones in the human body? Can label the human skeleton • Describe the functions of the skeleton • Describe the difference between an endoskeleton and an exoskeleton	Explore - Functions of skeleton Hook – Mystery bones. Make a model- the human skeleton	Research – What is the function of muscles? Simple test - Measuring muscles working in pairs	To know that humans and some animals have skeletons and muscles for support, protection and movement. Research – What is the function of muscles? Simple test - Measuring muscles working in pairs Modelling - Make a model of the muscles in the arm Comparative test - Measure who has the quickest reaction times	To be able to identify the correct type of enquiry to answer a question. Pattern-seeking; Do people with the longest legs jump the furthest? Game – science enquiry run-around		
Term 4 Electricity **Key scientist:** Thomas Edison	Hook – Hook – Designing and making a product: a torch for an explorer Classifying – What can electricity do?	Constructing series circuits Problem-solving – Which circuits will work? Can you repair the ones that do not work?	Observation – What can we find inside a torch?	Exploring switches	Classifying - Which materials are conductors/insulators?	Problem-solving - Making a torch	
Term 5 Animals and Humans – (Health and Nutrition) **Key scientist:** Adelle Davis	Review what they know about animals and living things from Yr 1 & 2. Introduce key scientist To know that animals cannot make their own food.	To know that animals, including humans, need the right amounts and types of food. Research - Why do animals need to eat different foods?	Research other animals - Which foods do animals need in order to survive? Food groups	**Food Labels** Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Identify that animals, including	Healthy diets for humans - research	Healthy diets for humans - research	

(Biochemist & Nutritionist who linked health and diet	How do living things get their food? Deep thinking time - Plant child. What do you know about health and nutrition?			humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. To explore the nutritional values of different foods by gathering information from food labels.			
Term 6 States of Matter **Key scientist:** Alfred Barnhard Nobel (1833-1896)	Review what they know about different materials from yr 1 and 2 Introduce key scientist What are the properties of solids, liquids and gases? • Describe what is meant by the property of a substance • Name the properties of solids, liquids and gases • Explain which state of matter a substance is in based on its properties	How do particles behave inside of solids, liquids and gases? Describe what a particle is • Describe how particles are arranged in solids, liquids and gases • Explain how we know particles in liquids and gases are moving	What happens when you heat or cool each state of matter? Describe what happens to particles when a substance is heated or cooled • Predict what happens to a solid, liquid or gas when it is heated or cooled • Give the evidence to show that each state expands when heated and contracts when cooled	What are changes of state and why do they take place? • Describe what happens to the arrangement of particles when a substance changes state • Name each of the changes of state • Give an example of each change in state	How can we measure the melting points and boiling points of a substance? • Describe what is meant by melting point and boiling point • Describe how it is possible to measure the melting point and boiling point of a substance • Suggest which state of a matter a substance will be in given its temperature	Which substances do not fit into one state of matter? Give examples of substances that do not show typical properties of any state of matter • Explain how some not show typical properties of one state of matter • Describe what a non-Newtonian fluid is	

UKS2 (Years 5/6) Knowledge Overview – Rotation B

	Week 1	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**	**Assessment Focus**
Term 1 **Living Things and their habitats –**	Yr 6: Living Things and their habitats: - Survey over time – Which fungi can you identify during the year? - Survey A: Can we find examples of plants from the different plant groups? - Survey B– Can we find examples of plants from the different plant groups?						

classifying plants and animals.	- Identifying and classifying - Bio-blitz – How many different things live in the school grounds? Yr 5: Living Things and their habitats Observations over time – When do plants have their flowers? - Observations over time – How does the flower change over time? - - Observations over time – What happens to the plant after fertilisation has occurred?						
Term 1 Properties and changes of materials (part one – Year 5) **Key scientists:** **Dmitri Mendeleyev (1834 - 1907)**	Review learning about materials and states of matter from previous years. Introduce key scientist. Hook – The Science Laboratory Game – Mystery equipment Deep thinking time	To be able to compare and group together everyday materials based on evidence from comparative and fair tests, including their conductivity of heat. To be able to give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. Comparative test – Which cups let through the most heat? Comparative test – Which material is best at conducting heat? Deep thinking time – Why are these objects made from particular materials?	To be able to compare and group together everyday materials based on evidence from comparative and fair tests, including their conductivity of heat. Fair –test investigation – Which material is best at keeping the tea warm? Drama – developing an explanation	To be able to compare and group together everyday materials based on evidence from comparative and fair tests, including their conductivity of heat. Problem-solve – How do you keep the tea the warmest for the longest amount of time?	To be able to compare and group together everyday materials based on evidence from comparative and fair tests, including their conductivity of heat. Simple test – What affect will a coat have a person and an ice man?	To be able to compare and group together everyday materials based on evidence from comparative and fair tests, including their conductivity of electricity. Simple test – Which materials allow electricity to pass through them? Simple test 2 - Which metals are the best conductors of electricity?	
Term 2 Living things and their habitats (year 6) Classification of plants and animals Key Scientist: Beatrix Potter (Mycologist, study of fungi, and Scientific Illustrator)	Review previous learning about animal groups and classifying them. Introduce key scientist. To be able to describe how living things are classified into broad groups according to common observable characteristics and based on similarities and	To be able to describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals.	To be able to describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals.	To be able to give reasons for classifying plants and animals based on specific characteristics. Naming plants Where can we find different plants? Classifying – How can plants be placed in different groups?	To be able to give reasons for classifying plants and animals based on specific characteristics. Problem-solving – How can attract more bees and butterflies into the school grounds?	Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. Identifying	

	differences, including micro-organisms, plants and animals. Hook – Drama: New species of birds are found!	To be able to give reasons for classifying plants and animals based on specific characteristics. Classifying – How can we classify living things? Classifying animals Classifying further Identifying insects: a. Beetles b. Butterflies Birds. Mammals – rabbits and hares Amphibians – frogs and toads.	Survey over time – Which fungi can you indentify during the year?	Survey A– Can we find examples of plants from the different plant groups? Survey B– Can we find examples of plants from the different plant groups?		and classifying - Bio-blitz – How many different things live in the school grounds?	
Term 3 **Living Things and their habitats – classifying plants and animals.**	Yr 6: Living Things and their habitats: - Survey over time – Which fungi can you identify during the year? - Survey A: Can we find examples of plants from the different plant groups? - Survey B– Can we find examples of plants from the different plant groups? - Identifying and classifying - Bio-blitz – How many different things live in the school grounds? Yr 5: Living Things and their habitats - Start to look for frogspawn Observations over time – When do plants have their flowers? - Observations over time – How does the flower change over time? - Observations over time – What happens to the plant after fertilisation has occurred?						
Term 3 Electricity – creating gadgets Key scientist: Alessandro Volta (1745-1827)	Review learning from Year 3/4 about electricity. Introduce key scientist. Problem-solving – An electronic scarecrow! Exploring circuits.	To be able to use recognised symbols when representing a simple circuit in a diagram. Introducing circuit diagrams and symbols	To be able to associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. Game – Why bother repeating? Illustrative fair-test – How will the number of batteries (amounts of Volts) affect the brightness of the bulb?	To be able to compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. Investigative Fair-test – What affects the brightness of a bulb in a circuit?	To be able to compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. Exploring electrical circuits Saboteurs! Drama/modelling – Being electricity	To be able to compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. To be able to use recognised symbols when representing a simple circuit in a diagram.	

						Problem-solving - Making an electrical scarecrow	
Term 4 **Living Things and their habitats – classifying plants and animals.**	Yr 6: Living Things and their habitats: - Survey over time – Which fungi can you identify during the year? - Survey A: Can we find examples of plants from the different plant groups? - Survey B– Can we find examples of plants from the different plant groups? - Identifying and classifying - Bio-blitz – How many different things live in the school grounds? Yr 5: Living Things and their habitats - Start to look for frogspawn - To be able to explain the life cycle of a bird. Secondary resources research – How do bird eggs change over time? Observations over time – How do bird eggs change over time? Observations over time – When do plants have their flowers? - Observations over time – How does the flower change over time? - - Observations over time – What happens to the plant after fertilisation has occurred?						
Term 4 Light Key scientist: **Jean-Bernard-Leon Foucault (1819-1868)**	Review learning about light and knowledge about light from LKS2. Introduce key scientist. Light – Why learn about it? To understand that light appears to travel in straight lines. Modelling – What evidence would prove that light travels in straight lines?	To be able to use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. Modelling – How do we see things?	Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. Modelling – How can we show why shadows have the same shape as the object that casts them? Problem-solving – Where would we need to place the umbrellas so that the people around the pool have the most shade?	To be able to explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. Modelling – How can we show how we see things in a mirror? Fair-test investigation – Which materials is best at reflecting light? Pattern-seeking – How can we increase the number of reflections? Explore – Make a kaleidoscope	To be able to use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. Problem solving – How can the detective see over the wall? (Making a periscope)	To be able to use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. Comparative test – Which window lets through the most amount of light? How much light passes through different objects Problem-solving – Make a stained-glass window	
Term 5 **Living Things and their habitats – classifying plants and animals.**	Yr 6: Living Things and their habitats: - Survey over time – Which fungi can you identify during the year? - Survey A: Can we find examples of plants from the different plant groups? - Survey B– Can we find examples of plants from the different plant groups? - Identifying and classifying - Bio-blitz – How many different things live in the school grounds? - Setting up investigation to encourage more bees and butterflies from planning ideas in term 2 – plant ready flowering plants etc.						

(ORDER ladybird breeding kit for term 6)	Yr 5: Living Things and their habitats – observing changes in frogspawn - To be able to explain the life cycle of a bird. Secondary resources research – How do bird eggs change over time? Observations over time – How do bird eggs change over time? Observations over time – When do plants have their flowers? - Observations over time – How does the flower change over time? - - Observations over time – What happens to the plant after fertilisation has occurred?						
Term 5 Forces – Pulleys, Levers, Gears and Simple Machines (Year 5) **Key scientist:** **Christopher Cockerell (1910- 1999)**	Review learning about forces from EYFS, KS1 and LKS2. Introduce Key scientist. To be able to explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Hook – Transport scientists!	To be able to recognise that some mechanisms, including pulleys, allow a smaller force to have a greater effect. Exploring pulleys – How do pulleys work?	To be able to recognise that some mechanisms, including pulleys, allow a smaller force to have a greater effect. Exploring pulleys – How do pulleys work?	To be able to recognise that some mechanisms, including gears, allow a smaller force to have a greater effect. Explore – How do gears work? Explore – How can you change the direction of turn and the speed of the gears?	To be able to recognise that some mechanisms, including gears, allow a smaller force to have a greater effect. Explore – How do gears work? Explore – How can you change the direction of turn and the speed of the gears?	To be able to recognise that some mechanisms, including levers, allow a smaller force to have a greater effect. Exploring levers Pattern-seeking – How much force is required at when the fulcrum is in different place to lift a mass at the other end?	
Term 6 **Living Things and their habitats – classifying plants and animals.**	Yr 6: Living Things and their habitats: Draw together all the surveys from the year and draw conclusions - Final Survey over time – Which fungi can you identify during the year? - Final Survey A: Can we find examples of plants from the different plant groups? - Final Survey B– Can we find examples of plants from the different plant groups? - Identifying and classifying - Bio-blitz – How many different things live in the school grounds? - Review effect of bee and butterfly encouragement planning. Yr 5: Living Things and their habitiats – observing changes in tadpoles to frogs etc. - To be able to explain the life cycle of a bird. Secondary resources research – How do bird eggs change over time? Observations over time – How do bird eggs change over time? Observations over time – When do plants have their flowers? - Observations over time – How does the flower change over time? - - Observations over time – What happens to the plant after fertilisation has occurred?						
Term 6 Living things and their habitats (Year 5) Life cycles **Key scientist:** **Jane Goodall** (Wildlife Researcher & Conservationist who studied chimpanzees)	Review learning from Year 2 and 4. Introduce key scientist: To be able to explain the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Introduction to Life cycles	To be able to explain the life cycle of a mammal. Life cycle of a mammal Research – Asking questions to an expert Observations over time – How does the small mammal change over time?	To be able to explain the life cycle of an insect. Life cycle of an insect Using secondary sources research – What are the different lifecycles of insects? Observations over time – What are the	To be able to describe the life process of reproduction in some animals. Secondary sources research – How do animals make babies?	From observations over year. To be able to describe the life process of reproduction in some plants. Reproduction – plants	From observations over year. To be able to explain the life cycle of an amphibian. Life cycle of amphibians. To be able to explain the life cycle of a bird. Secondary resources	

	Survey – At what part of their life cycle are the animals in the school grounds? Research – What can you find out about the different stages of life cycles of different animals?	Using secondary sources research – How do different mammals develop as they get older?	different stages of the life cycle of a ladybird?		Observation – What are the functions of the different parts of the flower? Secondary sources research – How does the pollen from one flower reach another flower? Secondary sources – How do animals pollinate plants?	research – How do bird eggs change over time? Observations over time – How do bird eggs change over time?	

***Ladybird breeding kit website for CAMERON CLASS – needs ordering in Term 5 for Term 6!! https://www.greengardener.co.uk/product/ladybird-breeding-kit-for-schools/**

Science Vocabulary

Please use the following when talking about science with the children – it will help increase their level of science and general articulacy.

KEY STAGE 1 VOCABULARY

ANIMALS INCLUDING HUMANS	EVERYDAY MATERIALS AND THEIR USES	PLANTS	SEASONAL CHANGE	LIVING THINGS AND THEIR HABITATS
Fish, Reptiles, Mammals, Birds, Amphibians (+ examples of each) Herbivore, Omnivore, Carnivore, Leg, Arm, Elbow, Head, Ear, Nose, Back, Wings, Beak Survival, Water, Air, Food, Adult, Baby, Offspring, Kitten, Calf, Puppy, Exercise, Hygiene	Wood, Plastic, Glass, Paper, Water, Metal, Rock, Hard, Soft, Bendy, Rough, Smooth Hard, Soft, Stretchy, Stiff, Shiny, Dull, Rough, Smooth, Bendy, Waterproof, Absorbent, Opaque, Transparent Brick, Paper, Fabrics, Squashing, Bending,	Deciduous, Evergreen trees, Leaves, Flowers (blossom), Petals, Fruit, Roots, Bulb, Seed, Trunk, Branches, Stem Seeds, Bulbs, Water, Light, Temperature, Growth	Summer, Spring, Autumn, Winter, Sun, Day, Moon, Night, Light, Dark	Living, Dead, Habitat, Energy, Food chain, Predator, Prey, Woodland, Pond, Desert

	Twisting, Stretching Elastic, Foil			

LOWER KEY STAGE 2 VOCABULARY

ANIMALS INCLUDING HUMANS	FORCES AND MAGNETS	PLANTS	LIGHT	ROCKS	ELECTRICITY	LIVING THINGS AND THEIR HABITATS	CHANGING MATERIALS: STATES OF MATTER	SOUND
Movement, Muscles, Bones, Skull, Nutrition, Skeletons, Mouth, Tongue, Teeth, Oesophagus, Stomach, Small Intestine, Large Intestine, Herbivore, Carnivore, Canine, Incisor, Molar	Magnetic, Force, Contact, Attract, Repel, Friction, Poles, Push, Pull	Air, Light, Water, Nutrients, Soil, Reproduction, Transportation, Dispersal, Pollination, Flower	Light, Shadows, Mirror, Reflective, Dark, Reflection	Fossils, Soils, Sandstone, Granite, Marble, Pumice, Crystals, Absorbent	Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Series, Conductors, Insulators	Vertebrates, Fish, Amphibians, Reptiles, Birds, Mammals, Invertebrates, Snails, Slugs, Worms, Spiders, Insects, Environment, Habitats	Solid, Liquid, Gas, Evaporation, Condensation, Particles, Temperature, Freezing, Heating	Volume, Vibration, Wave, Pitch, Tone, Speaker

UPPER KEY STAGE 2 VOCABULARY

ANIMALS INCLUDING HUMANS	FORCES	EARTH AND SPACE	PROPERTIES AND CHANGES OF MATERIALS	LIGHT	ELECTRICITY	LIVING THINGS AND THEIR HABITATS	EVOLUTION AND INHERITANCE
Foetus, Embryo, Womb, Gestation, Baby, Toddler, Teenager, Elderly, Growth, Development, Puberty Circulatory, Heart, Blood Vessels, Veins, Arteries, Oxygenated, Deoxygenated, Valve, Exercise, Respiration	Air resistance, Water resistance, Friction, Gravity, Newton, Gears, Pulleys	Earth, Sun, Moon, Axis, Rotation, Day, Night, Phases of the Moon, star, constellation	Hardness, Solubility, Transparency, Conductivity, Magnetic, Filter, Evaporation, Dissolving, Mixing	Refraction, Reflection, Light, Spectrum, Rainbow, Colour	Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Series, Conductors, Insulators**,** Amps, Volts, Cell	Mammal, Reproduction, Insect, Amphibian, Bird, Offspring Classification, Vertebrates, Invertebrates, Micro-organisms, Amphibians, Reptiles, Mammals, Insects	Fossils, Adaptation, Evolution, Characteristics, Reproduction, Genetics