Hartford Primary School Science Curriculum Map

	Autumn	Spring	Summer
Early Years	ELG: The Natural World Children at the expected level of development will: - Explore the natural world around them, making observations and drawing pictures of animals and plants; - Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class; - Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. ELG: Managing Self -Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.		
	Daily Weather Observation Autumn Changes Changing Materials- Gingerbread Men Plants- planting bulbs - daffodils Ourselves and our senses Minibeast Hunt – I am going to eat this ant Forest schools sessions x2	Daily Weather observations Winter/ Spring Changes Materials - Ice Exploration- Free the Naughty Bus Spring Flowers- Observational Drawing (Possible) Spring chicks – Living eggs project Forest schools sessions x2	Daily Weather Observations Summer Changes Transition – growth and change Plants- sunflowers - Make observations of plants, explain why some things occur and talk about changes. Plants – Growing Potatoes Materials – Floating and Sinking-Know about similarities and differences in relation to materials and objects. Healthy Eating – SuperTato Forest schools sessions x2

Year 1 Programme of Study- Knowledge			
Year 1	**Animals including Humans** • Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. • Identify and name a variety of common animals that are carnivores, herbivores and omnivores. • Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.) **Seasonal Change** • Observe changes across the 4 seasons (Autumn) •	**Everyday Materials** • Distingiush between an object and the material from which it is made • Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. • Describe the simple physical properties of a variety of everyday materials • Compare and group together a variety of everyday materials on the basis of their simple properties **Seasonal Change** • Observe changes across the 4 seasons (Winter, Spring) Enrichment – Forest Schools- Bog Baby Enrichment – Extinct Animals – Curious Case of the Missing Mammoth – Pathways to Write	**Plants** • Identify and name and name a variety of common wild and garden plants including deciduous and evergreen trees • Identify and describe the basic structure of a variety of common flowering plants **Seasonal Change** • Observe changes across the 4 seasons (Summer)
	Working Scientifically Year 1		
	Animals including Humans Use simple features to compare objects, materials and living things and with help decide how to sort and group them identifying and classifying	**Everyday Materials** - Experience different types of science enquiries, including practical activities.	**Plants** Use simple equipment- growing plants , observing plants with magnifying glasses

	animals into groups and into carnivores, herbivores and omnivores --Carry out simple tests- Can we identify the smells investigation in CP- -- Explore the world around them and raise their own simple questions. -senses walk and Autumn walk -- Use their observations and ideas to suggest answers to questions. **Seasonal Change** Observe changes over time.- Seasons – Autumn- Changes to weather and plants --Use simple equipment- magnifying glasses to observe Autumn leaves closely	-Carry out simple tests- Which material would be best for Teddy's coat?- waterproof experiment- comparative test --Use simple equipment – pipettes – waterproof experiment - Use simple features to compare objects, materials and living things and with help decide how to sort and group them (identifying and classifying materials and their properties). -Use their observations and ideas to suggest answers to questions. - With help, they should record and communicate their findings in a range of ways and begin to use simple scientific language. – record results of experiments in prepared tables and sorting circle/ venn diagrams -Talk about what they have found out and how they found it out. **Seasonal Change** Observe changes over time.- Seasons – Winter/Spring- Changes to weather and plants	-Use simple measurements and equipment to gather data. (height of bean as it grows) Explore the world around them and raise their own simple questions. – observing different plants and growing own fruit and vegetables - Experience different types of science enquiries, including practical activities. – Does a seed grow without soil?- comparartive test --Use simple features to compare objects, materials and living things and with help decide how to sort and group them (identifying and classifying).- types of trees and plants. - Observation over time – observe changes in growth of fruit/ vegetables and bean seed -Record simple data – record growth of bean seed in diary - Use their observations and ideas to suggest answers to questions. - Talk about what they have found out and how they found it out. **Seasonal Change** Observe changes over time.- Seasons – Summer- Changes to weather and plants

		Use simple equipment- record temperature with thermometer. Use wind sock.	Carry out simple tests-Pattern Seeking – Does it rain more in Spring?
Year 2 Programme of Study- Knowledge			
Year 2	**Uses of Everyday Materials** • identify and compare the suitability of a variety of everyday materials including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses • find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. **Living Things and their Habitats** • 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 kinds of animals and plants and how they depend on each other • identify and name a variety of plants and animals in their habitats including microhabitats • describe how animals obtain their food from plants and other animals, using the idea of a simple food chain and identify and name different sources of food Enrichment – Forest Schools	**Plants** • 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 Enrichment – Residential- (pond dipping, food chains, UK animals, lifecycles)	**Animals including Humans** • notice that animals, including humans, have offspring which grow adults • find out about and describe the basic needs of animals, including humans for survival (water, food and air)

	Working Scientifically Year 2		
	Uses of Everyday Materials Comparative Test Test materials for different uses? Which fabric would you use for curtains? Which materials are best for Cinderella's mop? Which fabric would you use for Elastigirl's costume? - With help, they should record and communicate their findings in a range of ways and begin to use simple scientific language- record results of tests in simple tables. Use language relating to properties of materials Talk about what they have found out and how they found it out. **Famous Scientists:** Charles Macintosh-Waterproof material John MacAdam- Tarmac Secondary sources How have the materials that humans used for houses changed since the Great Fire of London? **Living Things and their Habitats** Observation over Time- Explore animals in micro-habitats throughout the year (under rocks, logs, bushes and long grass) Use magnifying glasses Explore plants in micro-habitats throughout the year *Pattern Seeking* -What conditions do woodlice prefer to live in?	**Plants** Observation over Time Plant seeds in different conditions (eg no light, no water) and observe how they grow over time Plant bulbs and observe how they grow. Use simple measurements and equipment to gather data. Measure using cms, record changes using labelled diagrams Pattern Seeking Do bigger seeds grow into bigger plants? *Measure growth in cms and record using labelled diagrams* Children generate questions for investigation such as: Do big seeds germinate more quickly? Does it matter which way round you plant a bulb or seed? Which comes first, the root or shoot? Comparative Test Do cress seeds grow quicker inside or outside? Identification and Classification Based on children's own criteria: classify seeds/bulbs	**Animals including Humans** Observation over Time Observe a life cycle (caterpillars, chicks, farm animals) record as a flow diagram Observe how your body changes during/ after exercise Research using Secondary Sources Research adult animals and their young e.g. googling pictures and names of animals babies – swan and cygnet. What do you need to do to look after a pet dog/cat/lizard and keep it healthy? Identification and Classification Based on children's own criteria: Classify food items , classify animals Which offspring belongs to which animal? Famous Scientist Steve Irwin -Wildlife expert Florence Nightingale Pioneer of modern nursing in GB Louis Pasteur or Edward Jenner

	Which habitat do worms prefer – where can we find the most worms? Where do snails live? Identifying and Classifying Find things that are living/dead/things that have never been alive. Classify things found in the environment using own criteria leading to living, dead, never been alive. How would you group these plants and animals based on what habitat you would find them in? Arctic/ Rainforest/ Desert Research using Secondary sources Use secondary sources to name plants, animals seen in local environment. Research what animals they have first-hand experience of eat. How does the habitat of the Arctic compare with the habitat of the rainforest? -- Explore the world around them and raise their own simple questions		
Year 3 Programme Of Study- Knowledge			
Year 3	**Plants** • identify and describe the functions of different parts of flowering plants , roots, stem/trunk, leaves and flowers • explore the requirements of plants for life and growth (air, lights, water, nutrients from soil and room to grow) and how they vary from plant to plant	**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	**Forces and Magnets** • compare how things move on different surfaces • notice that some forces need contact between 2 objects, but magnetic forces can act at a distance

	• investigate 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	that have lived are trapped within rock • recognise that soils are made from rocks and organic matter History Link – Stone Age **Animals including Humans** • Identify that humans and some other animals have skeletons and muscles for support, protection and movement • identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food, they get nutrition from what they eat. Enrichment – Forest Schools	• observe how magnets attract or repel each other and attract some materials and not others • compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet and identify some magnetic materials • describe magnets as having 2 poles • predict whether 2 magnets will attract or repel each other depending on which poles are facing History Link – Ancient Egypt **Light** • recognise that they need light to see things and that dark is the absence of light • notice that light is reflected from surfaces • recognise that light from the sun can be dangerous and that there are ways to protect their eyes • find patterns in the way that the size of shadows changes
	Working Scientifically Year 3		
	Plants -Set up practical enquiries, comparative and fair tests	**Rocks** Talk about criteria for grouping, sorting and classifying, and use simple keys.	**Forces and Magnets** -Set up practical enquiries, comparative and fair tests

	-Observe what happens to plants over time when they have their leaves or roots removed. -Observe the effect of putting cut white carnations or celery in coloured water -Investigate what happens to plants when they are put in different conditions e.g. in darkness, in the cold, deprived of air, different types of soil, different fertilisers, varying amount of space. Make systematic and careful observations -Observe (dissect) flowers carefully to identify the pollen -Observe flowers being visited by pollinators e.g. bees and butterflies in the summer -Observe when seeds are blown from the trees e.g. sycamore seeds. To know when and how secondary sources might help them to answer questions, which through practical investigations cannot be answered -Research different types of seed dispersal Talk about criteria for grouping, sorting and classifying, and use simple keys.	-Classify rocks in a range of ways based on their appearance. - Classify soils in a range of ways based on their appearance -Make systematic and careful observations -Observe rocks closely and how rocks change over time e.g. gravestones or old building. Observe rocks over time in a lunchbox investigation – rock permeability - Observe soils closely Test how quickly water runs through soil types and how soil can be separated through sedimentation To know when and how secondary sources might help them to answer questions, which through practical investigations cannot be answered Research using secondary sources how fossils are formed Research the work of Mary Anning Take accurate measurements using standard units. Devise a test to investigate how much water different rocks absorb Famous Scientist – Mary Anning / Dr Anaya ? **Animals including Humans** To know when and how secondary sources might help them to answer	-Explore the way that magnets behave in relation to each other Use a marked magnet to find the unmarked poles on other types of magnets -Explore how magnets work at a distance e.g. through the table, in water, jumping paper clip up off the table -Devise an investigation to test the strength of magnets (through different materials) Explore what materials are attracted to a magnet Carry out investigations to explore how objects (cars) move on different surfaces. Take accurate measurements using standard units Surfaces experiment – record results in a bar graph. Measure using cms. -Talk about criteria for grouping, sorting and classifying, and use simple keys. -Classify materials according to whether they are magnetic. Famous Scientist – Andre Marie Ampere – Electro Magnetism **Light** Set up practical enquiries, comparative and fair tests

	Classify seeds in a range of ways including by how they are dispersed Famous Scientist – Joseph Banks - Botanist	questions, which through practical investigations cannot be answered Use secondary sources to research the parts and functions of the skeleton Investigate pattern seeking questions such as • Can people with longer legs run faster? • Can people with bigger hands catch a ball better? • Can people with longer arms throw further? Use secondary sources to find out they types of food that contain the different nutrients Use food labels to answer enquiry questions e.g. How much fat do different types of pizza contain? How much sugar is in soft drinks? Raise their own relevant questions about the world around them. Be given a range of scientific experiences including different types of science enquiries to answer questions. Children to ask and investigate own questions. Talk about criteria for grouping, sorting and classifying, and use simple keys. Compare, contrast and classify skeletons of different animals (Exoskeleton, Endoskeleton, Hydro skeleton) -Classify food in a range of ways	-Explore how different objects are more or less visible in different levels of lighting. Explore how objects with different surfaces e.g. shiny vs matt are more or less visible. Explore how shadows vary as the distance between the light source and an object or surface is changed. Explore shadows which are connected to and disconnected from the object e.g. shadows of clouds and children in the playground. Choose suitable materials to make shadow puppets Create artwork using shadows Talk about criteria for grouping, sorting and classifying, and use simple keys. -Classify materials according to whether they are transparent, translucent or opaque Classify light sources into natural and man made Recording Drawing labelled diagram of how light is blocked

		-Plan a daily diet contain a good balance of nutrients -Explore the nutrients contained in fast food Wihelm Rontgen- X rays	
Year 4 Programme of Study- Knowledge			
Year 4	**States of Matter** • Compare and group materials together, according to whether they are solids, liquids or gases • Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius • Identify the part played by evaporation and condensation the water cycle and associate the rate of evaporation with temperature **Electricity** • Identify common appliances that run on electricity • Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers • Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery • Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit	**Sound** • Identify how sounds are made, associating some of them with something vibrating • Recognise that vibrations from sounds travel through a medium to the ear • Find patterns between the pitch of a sound and features of the object that produced it • Recognise that sounds get fainter as the distance from the sound source increases	**Animals including Humans** • Describe the simple functions of the basic parts of the digestive system in humans • Identify the different types of teeth in humans and their simple functions • Construct and interpret a variety of food chains, identifying producers, predators and prey **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 Enrichment- Marshalls Arms- identifying wildlife and plants. Enrichment – Forest Schools

	• Recognise some common conductors and insulators, and associate metals with being good conductors		Eng/ Geog Link – Rainforests
Working Scientifically Year 4			
	States of Matter **- Make systematic and careful observations-** **- Help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used.** - Observe closely and classify a range of solids and liquids Explore making gases visible e.g. squeezing sponges under water to see bubbles, and showing their effect e.g. using straws to blow objects, -Observe a range of materials melting e.g. ice, chocolate, butter, Investigate how to melt ice more quickly -Observe the changes when making rocky road cakes or ice- cream - Observe water evaporating and condensing e.g. on cups of icy water and hot water **Talk about criteria for grouping, sorting and classifying, and use simple keys.** -Classify materials according to whether they are solids, liquids and gases **- Set up simple practical enquiries, comparative and fair tests.** **-Recognise when a simple fair test is necessary and help decide how to set it up.** **- Help to make decisions about what observations to make, how long to make them**	**Sound** **Talk about criteria for grouping, sorting and classifying, and use simple keys.** Classify sound sources **Set up simple practical enquiries, comparative and fair tests.** Explore making sounds with a range of objects such as musical instruments and other household objects Explore how string telephones or ear gongs work Explore using objects that change in feature to change pitch and volume such as length of guitar string, bottles of water or tuning forks Measure sounds over different distances Measure sounds through different insulation materials **Look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions**	**Animals including Humans** **To know when and how secondary sources might help them to answer questions, which through practical investigations cannot be answered** Research the function of the parts of the digestive system Use secondary sources to identify animals in a habitat and find out what they eat Create a model of the digestive system using household objects **Set up simple practical enquiries, comparative and fair tests.** Explore eating different types of food, to identify which teeth are being used for cutting, tearing and grinding (chewing) Tooth Decay investigation **Talk about criteria for grouping, sorting and classifying, and use simple keys.** Classify animals as herbivores, carnivores or omnivores according to the type of teeth they have in their skulls

	for and the type of simple equipment that might be used. **- Learn how to use a range of (new) equipment, such as data loggers, thermometers appropriately.** **- Collect and record data from their own observations and measurements in a variety of ways: notes, bar charts, tables, drawings, diagrams etc.** - Investigate melting point of different materials e.g. ice, margarine, butter and chocolate- record in tables Explore freezing different liquids e.g. tomato ketchup, oil, shampoo- record in tables -Use a thermometer to measure temperatures e.g. icy water (melting), tap water, hot water, boiling water (demonstration) - Set up investigations to explore changing the rate of evaporation e.g. washing, puddles, handprints on paper towels, liquids in containers **Start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions.** Use secondary sources to find out about the water cycle **Anders Celsius** (Celsius Temperature Scale) **Daniel Fahrenheit** (Fahrenheit Temperature Scale / Invention of the Thermometer) **Electricity**	**Start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions.** **Collect and record data from their own observations and measurements in a variety of ways:** **- Learn how to use a range of (new) equipment, such as data loggers,** Use data loggers to measure sound. **Present work using diagrams** Can explain what happens when you strike a drum or pluck a string and use a diagram to show how sounds travel from an object to the ea **Famous Scientists- Aristotle** (Sound Waves) **Galileo Galilei** (Frequency and Pitch of Sound Waves) **Alexander Graham Bell** (Invented the Telephone)	Use food chains to identify producers, predators and prey within a habitat **Famous Scientists-** **Cindy Looy** (Environmental Change and Extinction) **Jaques Cousteau** (Marine Biologist **Living things and their habitats** **Make systematic and careful observations** **Look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions,** Observe plants and animals in different habitats throughout the year Compare and contrast the living things observed Use fieldwork to explore human impact on the local environment e.g. litter, tree planting **Talk about criteria for grouping, sorting and classifying, and use simple keys.** Use classification keys to name unknown living things

	Set up simple practical enquiries, comparative and fair tests. **Use relevant simple scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences, including oral and written explanations, displays or presentations of results and conclusions.** Classify objects that use electricity Construct a range of circuits Explore which materials can be used instead of wires to make a circuit Classify the materials that were suitable/not suitable for wires Explore how to connect a range of different switches and investigate how they function in different ways Choose switches to add to circuits to solve particular problems such as a pressure switch for a burglar alarm **Present work using diagrams** Pupils should draw the circuit as a pictorial representation, not necessarily using conventional circuit symbols at this stage;these will be introduced in year 6. **With support, they should identify new questions arising from the data, making predictions for new values within or beyond**		Classify living things found in different habitats based on their features Create a simple identification key based on observable features Pupils could begin to put vertebrate animals into groups, for example: fish, amphibians, reptiles, birds and mammals; and invertebrates into snails, slugs, worms, spiders and insects. Plants could be grouped into categories such as flowering plants (including grasses) and non-flowering plants, for example ferns and mosses. **To know when and how secondary sources might help them to answer questions, which through practical investigations cannot be answered** Use secondary sources to find out about how environments may naturally change Use secondary sources to find out about human impact, both positive and negative, on environments **Cindy Looy** (Environmental Change and Extinction) **Jaques Cousteau** (Marine Biologist

	the data they have collected and finding ways of improving what they have already done. Apply their knowledge of conductors and insulators to design and make different types of switch N.B. Give children one component at a time to add to circuits. **Famous Scientist- Thomas Edison** First Working Lightbulb		
Year 5 Programme of Study- Knowledge			
Year 5	**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 form 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	**Earth and Space** • Describe the movement of the Earth and other planets relative to the sun in the solar system • Describe the movement of the moon relative to the Earth • Describe the sun, Earth and moon as approximately spherical bodies • Use the data of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky **Forces** • Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object • Identify the effects of air resistance, water resistance and	**Living things and their habitats** • Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird • Describe the life processes of reproduction in some plants and animals **Animals including Humans** • Describe the changes as humans develop to old age Enrichment- Chester Zoo

	changes associated with burning and the action of acid on bicarbonate of soda	friction, that act between moving surfaces • Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect Enrichment – Jodrell Bank Trip	
	Working Scientifically Year 5		
	Properties and Changes of Materials **Select and plan the most appropriate type of scientific enquiry to use to answer scientific questions.** **Use their results to make predictions and identify when further observations, comparative and fair tests might be needed.** Explore adding a range of solids to water and other liquids e.g. cooking oil, as appropriate. Investigate rates of dissolving by carrying out comparative and fair test Separate mixtures by sieving, filtering and evaporation, choosing the most suitable method and equipment for each mixture Explore a range of non-reversible changes e.g. rusting, adding fizzy tablets to water, burning Carry out comparative and fair tests involving non-reversible changes e.g.	**Forces** **Select and plan the most appropriate type of scientific enquiry to use to answer scientific questions.** **Use their results to make predictions and identify when further observations, comparative and fair tests might be needed.** -Investigate the effect of friction in a range of contexts e.g. trainers, bath mats, mats for a helter-skelter -Investigate the effects of water resistance in a range of contexts e.g. dropping shapes through water, pulling shapes e.g. boats along the surface of water-Investigate the effects of air resistance in a range of contexts e.g. parachutes, spinners, sails on boats - Research how the work of scientist Isaac Newton helped to develop the theory of gravitation.	**Living things and their habitats** **Recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact.** Use secondary sources and, where possible, first hand observations to find out about the life cycle of a range of animals **Make their own decisions about what observations to make what measurements to use and how long to make them for.** -Grow and observe plants that reproduce asexually e.g. strawberries, spider plant, potatoes (Observation over Time) -Take cuttings from a range of plants e.g. African violet, mint. Use first hand sources to observe the parts of a flower. E.g. Dissecting lilies

		Earth and Space **- Identify scientific evidence that has been used to support or refute ideas or arguments** Use first hand sources to help create a model e.g. role-play or using balls, to show the movement of the Earth around the Sun and the Moon around the Earth. **Recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact.** Use secondary sources to help make a model to show why day and night occur Oreo activity – demonstrating the phases of the moon.	**Animals including Humans** **-Use their science experiences to explore ideas and raise different kinds of questions.** Compare the gestation times for mammals and look for patterns e.g. in relation to size of animal or length of dependency after birth. **Look for different casual relationships in their data and identify evidence that refutes or supports their ideas.** Look for patterns between the size of an animal and its expected life span
Year 6 Programme of Study- Knowledge			
Year 6	**Light** • 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 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 objctes that cast them	**Electricity** • Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit • Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches	**Living things and their habitats** (link to Lit Autumn 2) • 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

	DT link – making electronic board game/card **Animals including Humans** • Identify and name the main parts of the human circulatory system and describe the functions of the heart, blood vessels and blood • Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function • Describe the ways in which nutrients and water are transported within animals including humans	• Use the recognised symbols when representing a simple circuit in a diagram **Evolution and inheritance** • Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago • Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents • Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.	• Give reasons for classifying plants and animals based on specific characteristics
	Working Scientifically Year 6		
	Light Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why. Can you prove light travels in straight lines? - Explore different ways to demonstrate that light travels in straight lines e.g. shining a torch down a bent and straight hose pipe, shining a torch through different shaped holes in card	**Electricity** Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why. How does changing the number of cells/ bulbs affect the brightness of the bulb? Plan enquiry, make predictions, test, observe	**Living things and their habitats** Recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact. Use secondary sources to learn about the formal classification system devised by Carl Linnaeus and why it is important. Can we offer evidence to

	Does changing the distance of the light source from an object affect the size of the shadow? Plan enquiry, make predictions, test, observe Choose the most appropriate equipment to make measurements with increasing precision and explain how to use it accurately. Take repeat measurements where appropriate. -Decide how to record data and results of increasing complexity from a choice of familiar approaches Taking measurements using rulers and recording by taking photographs. Repeat readings encouraged/ suggested in all experiments Children make a working periscope with mirrors/ considering angles etc Use a torch Diagram/labels of how a periscope works Can you prove light travels in straight lines? – oral presentation, demonstration and diagram Recording data using a table. Results from shadow investigation presented in a line graph Diagram / demonstration of how we see things Famous Scientist – Thomas Young	How does changing the number of motors affect the movement? Plan enquiry, make predictions, test, observe Choose the most appropriate equipment to make measurements with increasing precision and explain how to use it accurately. Take repeat measurements where appropriate. -Decide how to record data and results of increasing complexity from a choice of familiar approaches Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas Measuring brightness of blubs using data logging app on the ipads. Taking note of volts on batteries and increasing/ decreasing voltage during experiments Repeat readings encouraged/ suggested in all experiments Using a table to record data logging results Using a table to record observations of movement/speed Diagrams of circuits labelled and using correct symbols	support his findings from our own classifying? - -Use secondary sources to research the characteristics of animals that belong to a group and first hand observation to identify characteristics shared by the animals in a group -Use and develop keys and other information records to identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment. -Classify plants and animals presenting this in a range of ways; Venn diagrams, Carroll diagrams and keys -Use information about the characteristics of an unknown animal or plant to assign it to a group Create own animal and write letter to share scientific findings with Chester Zoo. **Famous Scientist –** Carl Linnaeus

	Animals including Humans Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why. - Carry out a range of pulse rate investigations -Fair test – Which activity increases my heart rate the most? -Pattern seeking – exploring which groups of people may have higher or lower resting pulse rates -Observation over time - how long does it take my pulse rate to return to my resting pulse rate (recovery rate) Pattern seeking – exploring recovery rate for different groups of people. Choose the most appropriate equipment to make measurements with increasing precision and explain how to use it accurately. Take repeat measurements where appropriate. Measuring their pulse As a class measuring 'ingredients' for a blood smoothie, matching the percentages in real blood -Decide how to record data and results of increasing complexity from a choice of familiar approaches -Use oral and written forms such as displays and other presentations to report conclusions, casual relationships and explanations of degree of trust in results	Verbal demonstration with PE equipment to illustrate how a circuit works Results from changing number of cells / bulbs experiment to help support their predictions for the changing the number of motors experiment Children asked what they would like to investigate next. planned and tested their own burglar alarms Famous Scientist – Thomas Edison- need to change as covered in Year 4 **Evolution and Inheritance** Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why. What are different kinds of beaks suited for? Plan enquiry, make predictions, test, display findings. -Decide how to record data and results of increasing complexity from a choice of familiar approaches Using tables to record the number of 'seeds' collected using their beak.	

	Recording their pulse on a table Graph created to present data from heart rate investigation with written analysis. Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas . Share the functions of the different aspects of blood – poetry Describe what the heart does – written explanation Recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact How do we stay safe / healthy? What should we avoid? – Research of scientists' work	Written explanations/ analysis after beak investigation. Next time – Bar chart/pie chart? Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas What do the fossils tells us about the evolution of the horse? – Written explanation Written explanation of how animals adapt and survive Diagrams/ pictures of animals based on inherited characteristics / camouflage Famous Scientist – Charles Darwin (Mary Anning covered in Year 3) -Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas. -Explore this process by considering the artificial breeding of animals or plants e.g. dogs Compare the ideas of Charles Darwin and Alfred Wallace on evolution Recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact	

		Analysing family photos – looking for evidence that siblings although similar can be different, looking for characteristics inherited from parents. How is it that birds have the right features for where they live What can we learn from fossils? – Evidence for evolution/natural selection The story of the peppered moth – Evidence for evolution/natural selection	