Subject Area – Science **Year Group - 1**

Term	Autumn One	Autumn Two	Spring One	Spring Two	Summer One	Summer Two
Knowledge	**Everyday materials**	**Everyday Materials con.. (Seasonal changes - Autumn)**	**Animals, including humans (Seasonal changes -Winter)**	**Animals, including humans (Seasonal changes - Spring)**	**Plants (Seasonal Changes - Summer)**	**Plants con..**
Working scientifically / skills **Science Ninja skills included: Observation Measurement Recording Equipment**	Observe Use observations to answer questions Use simple equipment Perform tests Identify and classify Gather/record results Ask and answer questions					
Building science capital	School grounds	School grounds Healthy eating - cookery workshop Pizza Express	School grounds, local parks Outdoor/ indoor sensory experiences,	School dog Trip to Pymmes Park	School grounds Pymmes Park Grow and eat our own food	
Composite knowledge	Materials are the substances that objects are made from. The different types of materials are wood, plastic, glass, metal, and rock.		Eyes are used for sight Skin is used for touch Nose is used for smell Mouth is used for taste Ears are used to hear. Identify the basic parts of the human body	There are 5 groups of animals. Animals have different structures and are classified into mammal/ fish/ amphibian/ reptile/ bird/ insects	Plants are living things. Plants have a structure. The variety of plants ranges from small	o

	Different types of materials have different properties.				flowering plants to big trees	
Component knowledge	Distinguish between an object and the material from which it is made Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock Describe the simple physical properties of a variety of everyday materials Compare and group together a variety of everyday materials on the basis of their simple physical properties	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 Idescribe 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 physical properties	Identify and name our five senses and link it to the relevant body part Name/label the basic parts of the human body (head, neck, arms, elbows legs, knees face hair teeth through songs & rhymes)	Identify and name common animals- mammal/ fish/ reptile/ amphibian/ bird 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-inc. pets) Understand how to care for and return minibeasts to their natural environments	Identify 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, including trees	
Vocabulary	Waterproof, transparent, flexible, soft, hard, rough, smooth, wood, plastic, glass, metal object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard,	Float, sink,soft, light, heavy, absorbent, transparent, opaque wood, plastic, glass, metal, water, rock, plastic, paper, sponge, foil, cotton, brick,	Senses, eyes, ears, nose, mouth, touch, smell, taste, hear, see, head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves Names of animals experienced first-hand from each vertebrate group, parts of the human body	omnivores, carnivores, herbivores Names of common animals including examples of mammals, amphibians, reptiles and birds.	leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud, names of trees in the local area, names of garden and wild flowering plants in the local area	

	rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through, water, rock SEASONS: weather, sunny, rainy, raining, shower, windy, snowy, cloudy, hot, warm, cold, storm, thunder, lightning, hail, sleet, snow, icy, frost, puddles, rainbow, seasons, winter, summer, spring, autumn, Sun, sunrise, sunset, day length		including those within the school's RSE policy, senses, touch, see, smell, taste, hear, fingers, skin, eyes, nose, ears, tongue			
Conclusion or explanation sentence starters, support sentences	A material is _____ The properties of wood are _____ Choose a material and explain its properties to your friend.	A material is _____ The properties of cotton are _____ A pencil is …. A desk is…. Choose a material which is transparent and explain its	I use my _____ to ____ I use my _____ for _____ When I close my eyes I know that _____	An animals that eats plants is_____ A dog is a_____ A robin is a _____	A _____ is a tree that stays green all year round. The root of a plant _____ The stem of a plant _____	

		properties to your friend.				
Links to prior knowledge	EYFS	EYFS Summer 1 (seasons)	EYES		EYFS	EYFS Summer 1 (seasons)
Key knowledge for assessment	Distinguish between an object and the material it is made from Names of some everyday materials: wood, plastic, metal, water and rock. Understanding of key vocabulary re. properties of materials Group everyday materials by their simple physical properties	Uses of different materials – what is the best material How to test a material for durability, flexibility, and waterproof(ness)	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	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 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, including trees Knowing what a plant is, and being able to name some types of plant Being able to describe what a plant needs to grow	
Key knowledge assessment questions	What is an object made from? An example of something hard is An example of something soft is An example of something shiny is An example of something bendy is Match the objects to the material from which it is made: Window table	What does waterproof mean? How do you know a material is absorbent? An example of something which is waterproof is? An example of a material which is absorbent is	Which body part relates to which sense? What are the names of the 5 senses? What do we use to smell? How many senses do we have? Name some smells that you like. Name some smells that you don't like.	Name a mammal. Name a fish Name a reptile Name an amphibian Name a bird What are the features of mammals, birds, fish, amphibians and reptiles? How are they the same and different? _____ is a mammal because_____ True/ false a shark is a fish?	Label the parts of a flower plant Label the parts of a tree (have words to prompt) Draw a picture of a tree in the summer Label the different parts of a plant?(use word prompts) List the names of plants you know List the names of trees you know	

	chair wall fork metal plastic glass wood rock Which of these materials are waterproof glass, plastic, wood paper cardboard Which properties- relate to the materials wood plastic, glass, foil paper bendy or stiff hard or soft Rough or smooth opaque transparent Absorbent non absorbent. Using objects made of the following: of wood, metal plastic glass and rock ask the pupils to group if they are transparent or opaque		Why does mouldy food smell bad? How do our senses keep us safe? (Too hot/ too cold What do we use to see? What do we use to hear? What do we use to feel? What do we use to taste?	What does omnivore mean? Give an example What does carnivore mean ? Give an example What does herbivore mean? Give an example		
Cross-curricular links	DT: Design a lever and slider using a range of materials Geography English: 10 things I can do to save my world. Discuss which objects can be recycled with focus on materials.	Geography: Identify human features in the local area and discuss what materials they are made from. English: Our very own dog. Discuss materials used to make a dog shelter.	Art: Draw outline of the human body Literacy: Man on the moon. Understand which senses astronauts use when exploring space.	Maths- measuring Geography: Look at animals which live in Scotland and compare them to animals in England. Habitats Story books: Traction Man - looking at animals in a coastal environment. Maths - Sorting with Venn diagrams	DT: make cardboard/paper/wool plant models English: The Lila and the secret rain. Looking at what affects the local environment.	

Subject Area – Science **Year Group – 2**

Term	Autumn One	Autumn Two	Spring One	Spring Two	Summer One	Summer Two
Knowledge	**Animals, including humans**	**Living things and their habitats**	**Living things and their habitats**	**Uses of everyday materials**	**Uses of everyday materials continued Plants**	**Plants continued**
Working scientifically / skills **Science Ninja skills included: Observation, Measurement, Recording Equipment**	Observe Use observations to answer questions Observe over time Use simple equipment Perform tests Identify and classify Gather/record results Ask and answer questions					
Building science capital	Sports health School dog	Climate change Environmental rights and issues Conservation	Climate change Environmental rights and issues Conservation Trip to Pymes Park wetlands for habitats	School building and items Science walk and field trip around local area	School grounds Pymmes Park Wetlands	
Composite knowledge	What animals including humans need in order to survive and stay healthy Notice that animals, including humans, have offspring which grow into adult	The differences between living things, things that are dead and things that have never been alive Where different animals live and why	Where do different animals live and why How and where do animals find their food	Materials have different properties which makes them suitable for certain uses and purposes, also that materials can be used for more than one thing or purpose Some solid material can be changed by human force	What a plant needs to grow and survive The main parts of a plant What plants need to grow The different parts of a plant Learn how to plant a seed Plants need sunlight and air to grow What is needed for healthy plant growth The difference between young plants and mature plants	

					The function of each part of the plant seed's change and growth and change overtime	
Component knowledge	Notice that animals, including humans, have offspring which 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	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 microhabitats	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 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	Identify,test and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses or circumstances Classify the uses of different everyday materials. Use observations, ask questions and test materials to answer simple questions Investigate how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	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	

Vocabulary	survive, offspring, hygiene, balanced diet, exercise, healthy, unhealthy reproduction, growth, baby, toddler, child, teenager, adult, old person, names of animals and their babies (e.g. chick/chicken,cat /kitten, caterpillar/butter fly)	living, dead, habitat, energy, food chain, predator, prey, woodland,Pond, microhabitat, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, water, air, survive, survival, names of local habitats (e.g. pond, woodland etc.), names of micro-habitats (e.g. under logs, in bushes etc.), conditions, light, dark, shady, sunny,wet, damp, dry, hot, cold, names of living things in the habitats and micro-habitats studied		hard, soft, stretchy, stiff, shiny, dull, rough, smooth, bendy, waterproof, absorbent, opaque, transparent, brick, paper, fabrics, squashing, bending, twisting, stretching , flexible, rigid, shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching translucent, reflective, non-reflective elastic, foil, rubber, plastic	temperature, healthy, unhealthy, condition light, shade, Sun, warm, cool, water, space, grow, healthy, bulb, germinate, shoot, seedling	
Explanation or Conclusion sentence starters, support sentences	Humans need key things to stay alive… Human grow and change over time because … Important things which Humans need for a healthy life are…	In a food chain there needs a … I can tell something is living because… I can tell that something is dead as it… The main differences or similarities are…	There are lots of different habitats which are… A habitat has living things in it which are… Some animals need to live in water because… Other animals live in a woodland habitat because…	This material is hard or soft becaus…e This material is the most suitable for a raincoat because… Wood is hard is good for making pencils… I know that this object is made from this material because… This material is opaque because…	Plants need _____, _____, _____ to stay healthy. Plants do not grow well in dark places because They need water, sunlight and nutrients from the soil to stay alive.	

			These habitats differ because…	I know this material is translucent as The material which is… the most absorbent is… The material which is waterproof is …		
Links to prior knowledge	EYFS - Shows care and concern for living things and the environment Year 1 – Animals including Humans	EYFS - Shows care and concern for living things and the environment Year 1 - N/A	EYFS - Shows care and concern for living things and the environment Year 1 – N/A	EYFS - Beginning to be interested in and describe the texture of things. Manipulates materials to achieve a planned effect Year 1- Everyday materials	EYFS - Beginning to be interested in and describe the texture of things. Manipulates materials to achieve a planned effect Year 1- Everyday materials	
Key knowledge for assessment	Identify what humans need for survival Explain the life cycles of a living thing Explain the effect of human actions on our body (exercise/healthy eating)	Explain the difference between living, dead and never alive Explain why animals choose specific locations to live Identify a variety of habit types	Natural food sources that can be found 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 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	Identify which materials are best suited for certain purposes (parts of a building structure e.g. glass for windows) To compare and test materials suitability and describe their different uses To identify the most suitable materials for a purpose based on their properties and explain my choices e.g. raincoats, buildings (school), robot (ties in with Robot and the blue bird)	Identify what plants need in order to grow and survive Explain the effect of the environment on plant growth	

Key knowledge assessment questions	How do animals and humans change over time? What are the key stages of the human life cycle? What are the key stages of an animal's life cycle? Why do we need good hygiene? Why is a healthy diet important? Why do we exercise? Is ice cream a healthy food? Explain why. What foods would a balanced meal have? Explain.	What does alive/ dead// never been alive mean? Can you give an example? What different habitats are there? why? What key things do living things need to stay alive? What plants grow in a ___ habitat? What is a habitat? What is a microhabitat? Where would a spider live? Why? What habitat is the most suitable for a duck? Why?	What are the basic needs for survival? Why is this(woodland, pond, trees,) habitat suitable for? What different habitats are there? What animals or insects could you find in a microhabitat ?	Thinking of our school building /here is a diagram of a house. Which materials would best be suited to make the following parts of the house from: Windows Window frame Door Fence Roof Structure (outside) Chimney What materials are water bottles usually made from? Are water bottles normally made from paper? Explain your reasoning Would a raincoat made of paper be suitable to go out in the rain?Explain why Can you name any objects or materials that can change shape? Explain how you know this Which materials are suitable to make a robot or school?	What does a plant need to grow and survive? What do plants need to grow? What are the different parts of a plant? How would you plant a seed? Why do plants need sunlight and air? Will cress seeds grow in a fridge? How do young plants differ from mature plants? What do seeds and bulbs need to grow(not light) ? What does each part of the plant do? How do seeds grow and change overtime?	
Cross-curricular links	RSE Literacy	PSHE- Environmental and climate change Geography Literacy	Geography Literacy Diorama- D&T		PSHE- Environmental and climate change	

Subject Area – Science **Year Group – 3**

Term	Autumn One	Autumn Two	Spring One	Spring Two	Summer 1	Summer 2
Knowledge	**Light**	**Animals, including humans**	**Force and magnets (over 9 lessons so extends into SP2)**	**Forces and magnets**	**Rocks**	**Plants**
Working scientifically / skills **Science Ninja skills included: Observation, Measurement, Recording Equipment**	Ask relevant questions and use different types of scientific enquiries to answer them, set up simple practical enquiries, comparative and fair tests. Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, use a range of equipment,including thermometers and data loggers. Gather, record, classify and present data in a variety of ways to help in answering questions. Record findings using simple scientific language, drawings,labelled diagrams,keys, bar charts, and tables. Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Identify differences, similarities or changes related to simple scientific ideas and processes. Use straightforward scientific evidence to answer questions or to support their findings.					
Building science capital	Epping forest	School grounds	School grounds	Science museum Local area	Natural History museum Local area for a Rock Hunt	Science museum Pymmes park or Trent Park
Composite knowledge	Know and understand what light is and identify sources of light How light travels How too much sunlight can be dangerous How humans see things Formation of shadows Why some objects are considered light sources when they are not	Know the differences between humans and other animals Know the difference between endoskeleton and exoskeletons The functions of the skeletons The different food groups Know what a balanced diet means The main bones in the human skeleton. How muscles work to create movement		Know what forces are and identify different types of forces (pushes, pulls and non contact forces i.e. magnetism) How some materials are magnetic and others non-magnetic Know that magnets attract and repel depending on what poles are facing one another (like poles repel, opposites attract)	The different types of rocks (igneous, sedimentary, metamorphic) How different types of rocks are formed Properties of rocks (durable, hard, soft density, permeable) Uses of rocks in our everyday lives. What erosion is How soil is made Formation of fossils	Identify parts of a flower and their functions What a plant needs to grow How water travels in a plant The different stages of the life cycle of a plant (including pollination and the different types of seed dispersal) The different types of plants Uses of plants in everyday life

	How to keep ourselves safe from too much UV light					The needs of plants to grow successfully.
Component knowledge	Explain how we are able to see objects. Recognise that light appears to travel in straight lines Explain why light is reflected from some surfaces and not others. Explain why light from the sun can be dangerous Explain and describe how we can protect ourselves from the sun Describe and explain how shadows are formed Describe the difference between opaque, translucent and transparent Identify patterns in the way that the size of shadows changes size in relation to position of the light source	Understand the different foods humans need and that they cannot make their own food; we get nutrition from what we eat. Describe and explain a balanced diet Describe the differences between endoskeletons and exoskeletons. Identify that humans and some other animals have skeletons and muscles for support, protection and movement Explain how muscles work (in antagonistic pairs)	Identify pushes and pulls The difference between contact and non contact force Explain that magnets have two poles (north and south) Identify which materials generate the most friction Compare magnetic and non magnetic materials on the basis of whether they are attracted to a magnet Explain why some materials are magnetics and not others Observe how magnets attract or repel each other and attract some materials and not others Compare the strength of magnets	Plan and carry out an investigation based on forces and magnetism Explain why magnets repel and attract (like poles repel, opposite attract) Use a compass correctly Compare how objects move on different surfaces	Compare different types of rocks based on their appearance and simple physical properties Group rocks based on their properties Describe how fossils are formed when things that have died become trapped within rock Describe how soil is made Explain the four processes involved in soil formation (addition, losses, translocations, transportations Recognise that soils are made from rocks and organic matter	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, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant Plan and carry out an investigation on plant growth 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

Vocabulary	light, shadows, mirror, dark, reflection, transparent, translucent, opaque light source, absence of light, surface, shadow, reflect, mirror, Sun, sunlight, dangerous	endoskeleton, exoskeleton, nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, joints, support, protect, move, skull, ribs, spine	attract, repel, poles, pull, push, gravity, magnetism twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet,, magnetic material, metal, iron, steel, poles, north pole, south pole	non contact force, contact, attract, repel, friction, poles, pull, push, gravity, magnetic force, magnet, attract, magnetic material, metal, iron, steel	soils, sandstone, granite, marble, pumice rock, stone, pebble, marble, chalk, granite, slate, types of soil (e.g. peaty, sandy, chalky, clay) boulder, grain, crystals, layers, hard, soft, texture, absorbs water, fossil, bone, flesh, minerals,	photosynthesis, pollen, insect/wind pollination, male, female, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal), air, nutrients, minerals, soil, absorb, transport air, light, water, nutrients, soil, reproduction,
Explanation or Conclusion sentence starters, support sentences	My prediction is that light travels …. My hypothesis is the tin foil will ….. I found out that the paper around the shape had lightened whereas ….	The names of the different food groups are ……. Examples of food that contains carbohydrates are ….. A good balanced diet consists of ….. The three main function of our skeleton are ____ Muscles help us to _____ Muscles can be contracted, ___ and ____	The different types of forces are …….. Examples of forces are to push, …… Materials can be magnetic and ------- Magnetic force is an _____ force.	Magnets have two poles they are called ….. and …… A compass always points to the _____ North pole and south pole _____ Opposite poles always …….. Metals that attract magnets are ……	My hypothesis is that chalk is p…… Rocks have different types of properties, they are permeable, ….. and ….. permeable allows ….. We found out that chalk, clay and sandstone are ….. Natural rocks are : granite ,….. Human made rocks are ….., ….. The three different types of rocks are sedimentary, …. and …. Fossils are the _____ remains of an _____ or	Names of parts of plants are …… The functions of a plant are ….. I predict plants need --------,------ to grow well. Plants need certain conditions to grow well, they are ……. The function of a stem is to ……..

					_____ that were once living.	
Links to prior knowledge	Year 2 Everyday materials Reflective materials, transparent, opaque	Year 1 Identify, name and draw the basic parts of the human body. Know what part is associated with each sense Year 2 Animals have offspring that grow into adults. Basic needs of animals for survival. Importance for humans of exercise, correct diet and hygiene.	Year 1 Distinguish between an object and a material. Identify everyday materials. Describe the simple physical properties of everyday materials Compare and group together a variety of everyday material Year 2 Everyday materials Identify and compare the suitability of a variety of materials for certain uses.	Year 1 Distinguish between an object and a material. Identify everyday materials. Describe the simple physical properties of everyday materials Compare and group together a variety of everyday materials Year 2 Everyday materials Identify and compare the suitability of a variety of materials for certain uses.	Year 2 Everyday materials Identify and compare the suitability of a variety of materials for certain uses. How the shapes of solid objects of certain materials could be changed by squashing etc	Year 1 Identify wild and garden plants Identify and describe structure of plants and trees Year 2 Observe and describe how seeds grow into plants Describe how plants grow and stay healthy
Key knowledge for assessment	Light is a form of energy The moon is not a source of light, the light from the sun reflects on the moon Light travels in straight lines Opaque objects block light Translucent objects let some light through Transparent objects let all light through Light is reflected off shiny surfaces but not dull ones	An endoskeleton is on the inside and an exoskeleton is on the outside Some animals do not have either skeleton e.g. an earthworm The functions of skeletons (support, movement, protection) The different food groups (carbohydrates, fats, proteins, diary) Examples of food from the different groups e.g. pasta is a carbohydrate A balanced diet - eating a wide variety of foods in moderation and in the right proportions	A force is a push or pull that changes the speed, space or direction of an object or causes an object to stop. The difference between contact and non contact force Like poles repel and opposite poles attract. A magnet has a north and a south pole. Use experimental data to identify which is the strongest and weakest magnet		Describe different types of rocks based on their appearance (smooth, hard, crumbly, rough). The three different types of rocks: Sedimentary, Igneous and Metamorphic. Understand the difference between human made and natural rocks (give examples). Manmade is created by humans and natural rocks are formed and found naturally in our environment. Investigate properties of rocks - test whether	Parts of the plantL ovary, stigma, petals, leaves, flowers, stem Different parts of the flowering plants and their job. To explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) Investigate what plants need to grow well. Record findings using simple scientific language, drawings, labelled diagrams or tables by observing

	We see light because the light bounces off objects, being reflected into our eyes Shadows are formed in the absence of light	The main bones in the human body e.g. (skull, ribs, spine, pelvis) How muscles move - they work in pairs, when one contracts, the other repels. They work in antagonistic pairs with a focus on the bicep, tricep example			they are permeable, durable and density. Recognise soil is made up of rocks and organic matter (living things - plants and animals). Explain how soil is formed (the processes of soil formation) Air - water - gases ..(addition, losses, transportation, translocation) Describe in simple terms how fossils are formed from when living things are trapped within rocks trapped	and recording plant growth. Investigate how water is transported within plants. Name the different parts of a flower and explain their role in pollination and fertilisation. Understand and order the stages of the life cycle of a flowering plant.
Key knowledge assessment questions	Can you name examples of sources of light? How does light travel? What does transparent, translucent and opaque mean? What types of surfaces reflect light? Why is too much sun dangerous for us? How do we see? What patterns do you notice about the	Where do humans and animals get their nutrition from? What is the difference between endoskeleton and exoskeleton? Give examples What are the functions of the skeleton? Name the different food groups? Name examples of food from the different food groups? What is a balanced diet?	What is a non contact and contact force ? Is blowing a pencil across a desk non contact or contact force? What are the effects of a force on an object? What is the difference in how a toy car moves down a rough or smooth surface? Identify a push and a pull. Identify the source of a push or pull. What metals can magnets pick up?		What are the different types of rocks? How are igneous/sedimentary/ metamorphic rocks formed? What are the properties of rocks? What are the everyday uses of rocks? Identify igneous/sedimentary/ metamorphic rocks. How are fossils formed?	Name part of plants? What are the functions of plants? What do plants need to grow? What is the function of a stem? How does water travel in a plant? How are seeds dispersed? What is the life cycle of a plant?

	shadow when you move a torch closer to the object? When do shadows form?	What are the main bones in the human body? How do our muscles help us to move?	Will two magnets facing like poles attract or repel? Will two magnets of opposite poles attract or repel?		What are the three different types of fossils?	
Cross-curricular links	Reading comprehension	Literacy- information fact sheet PE - Checking pulse count before and after exercise Maths- Venn diagram- sorting food groups Measuring in cm (link to investigation correlation between shoe size and height)		Reading comprehension (Palaeontology) Reading- case studies - West Runton Mammoth)	Geography- Volcanoes	Maths- Take daily measurements of plant growth. DT: Making mini greenhouses. Maths - Measuring of resources required to make the greenhouse

Subject Area – Science **Year Group – 4**

Term	Autumn One	Autumn Two	Spring One	Spring Two	Summer 1	Summer 2
Topic	**Animals, including Humans**	**States of Matter**	**Sound**	**Electricity**	**Living things and their habitats (1)**	**Living things and their habitats (2)**
Working scientifically skills **Science Ninja skills included: Observation, Measurement, Recording Equipment**	Ask relevant questions and use different types of scientific enquiries to answer them, set up simple practical enquiries, comparative and fair tests. Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, use a range of equipment,including thermometers and data loggers. Gather, record, classify and present data in a variety of ways to help in answering questions. Record findings using simple scientific language, drawings,labelled diagrams,keys, bar charts, and tables. Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Identify differences, similarities or changes related to simple scientific ideas and processes. Use straightforward scientific evidence to answer questions or to support their findings.					
Building science capital	School dog Animals in the local environment	Healthy eating cookery workshop shop	Healthy eating workshop Musicians	Parent visit	Epping Forest Science Museum	Pymmes park
Composite knowledge	The function of the human digestive system Types and functions of human teeth How to interpret and construct food chains	Recognise materials as solids, liquids and gases How materials change state The importance of evaporation and condensation in the water cycle	How sounds are made How sound travels Patterns and features associated with pitch and volume of sound The connection between distance and sound	Common appliances run on electricity How a simple series electrical circuit is made using basic parts Complete and incomplete circuits using batteries How light switches work in a simple series circuit	How living things are grouped What are classification keys, why they are used and how to use them Environment and dangers of change	The impact humans have on the environment The impact that changes in the environment can have on living things .

				Conductors and insulators - metals are good conductors.		
Component knowledge	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	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 (°C) Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	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 Find patterns between the volume of a sound and the strength of the vibrations that produced it Recognise that sounds get fainter as the distance from the sound source increases	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 Recognise some common conductors and insulators, and associate metals with being good conductors	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 Identify the characteristics of living things Understand the how environment changing could pose dangers to living things	Recognise that environments can change and that this can sometimes pose dangers to living things Understand that changes can happen naturally and can also be proposed by humans (man-made) Be aware that changes to the environment can have both positive and negative effects Understand ways to have a positive impact on the environment
Vocabulary	mouth, tongue, teeth, oesophagus, stomach, small intestine, large	solid, liquid, gas, evaporation, condensation, temperature, freezing,	volume, vibration, wave, pitch, tone, sound, source, vibrate, vibration,	electricity, electrical appliance/device, mains, plug, electrical circuit, complete	organisms, life processes, vertebrates, fish, amphibians, reptiles, birds,mammals, invertebrates, snails, slugs, worms,	environmental changes, impact, adaptations, natural changes, nocturnal, survival, hibernate.

	intestine, herbivore, carnivore, canine, incisor, molar omnivore, producer, predator, prey digestive system, digestion, saliva, , rectum, anus, premolar,	heating, cooling, state change, melting, melting point, boiling, boiling point, temperature, water cycle	travel, pitch (high, low), faint, quiet, loud, insulation	circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, metal, non-metal, symbol	spiders, insects, environment, habitats, classification, classification keys, environment, habitat, human impact, positive, negative, migrate,	
Explanation or Conclusion sentence starters, support sentences	There are … different types of teeth. They are called … The digestive system is important because … The role of the oesophagus is to … The small intestine, a long, narrow, folded or coiled tube extends from the … to the … In the large intestine, water is absorbed and the remaining waste material is stored as … before being removed by … An animal who hunts other animals for food is called …	Materials in a ……. state keep their shape unless a force is applied to them. …….. do not have to be hard. They can be squashy or soft. Materials in a ……. state take the shape of the container they are in. …….. can flow or be poured. The state of……. can spread out to completely fill the container or room they are in. Materials are made of very tiny……. When a liquid turns into a solid it is called……..	Sounds are made when an object …… We hear sounds when the ……... travel from a source through a medium to our ……... Sounds get fainter when you are ……... from the source of the sound. Sound is a form of …….. The more energy that is put into creating a sound, the ……. the sound that is made	Electricity flows through ……. to travel from a power source to an ……. A power source is a …… The two types of electrical current that we use to power our appliances are …… and …… To make a circuit you need ……... …….. is a good conductor.	All living…….share these……. That is how we know they are…….. The……. life processes are …… All living things can be split into…..groups, which are…….. and ……. ……..keys are used to……..animals. A……..is a place where…….and ……..live Threats to habitats are……...	Environments can change ……. or they can be caused by …… Most natural changes happen …….. and does not have an impact on animals because animals can ……. to survive the changes. To cope with the……..season animals grow thicker fur, store food or hibernate. The 5 different changes that have a negative impact on the environment are……..

	Animals who are hunted and eaten by other animals are called …	. When a solid turns into a liquid it is called …….. ……. is the process of a liquid changing into a gas				
Links to prior knowledge	Year 1 Identify, name and draw the basic parts of the human body. Know what part is associated with each sense Year 2 Animals have offspring that grow into adults. Basic needs of animals for survival. Importance for humans of exercise, correct diet and hygiene Year3 Animals need the right types and amount of nutrition, they get nutrition from what they eat. Identify the humans and some animals have skeletons and muscles for support and movement	Year 1 Distinguish between an object and a material. Identify everyday materials. Describe the simple physical properties of everyday materials Compare and group together a variety of everyday materials Year 2 Everyday materials Identify and compare the suitability of a variety of materials for certain uses Year 3 Compare and grouping rocks on basis of appearance and properties Formation of fossils Recognise soils are made from rocks and organic matter	NA	Year 3 Light Recognise need light to see Notice how light is reflected from surfaces	Year 1 Identify wild and garden plants Identify and describe structure of plants and trees Year 2 Observe and describe how seeds grow into plants Describe how plants grow and stay healthy Year 3 Functions of the parts of plants Explore the needs of different plants for life and growth Investigate the way water is transported within plants Life cycle of plant	Year 1 Identify wild and garden plants Identify and describe structure of plants and trees Year 2 Observe and describe how seeds grow into plants Describe how plants grow and stay healthy Year 3 Functions of the parts of plants Explore the needs of different plants for life and growth Investigate the way water is transported within plants Life cycle of plants

Key knowledge for assessment	Name and explain the functions of the human teeth Name and describe the function of the digestive system What living things make a food chain and the impact of a break in a food chain	Describe solids, liquids and gases and their properties Describe what happens to the different materials when they are heated or cooled Explain how water evaporates and how the rate of temperature affects the process of evaporation	Describe how sound can travel through different mediums Identify the parts and explain the function of the human ear Explain how vibrations work and their impact on pitch and volume	Name a common appliances that run on electricity How a simple series electrical circuit is made using basic parts Complete and incomplete circuits using batteries How light switches work in a simple series circuit Conductors and insulators - metals are good conductors.Name the parts of a simple circuit How circuits work and the function of a switch Know how to make a circuit that can light a bulb	Name the different groups of living things 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 Identify the characteristics of living things The environment changing and dangers to living things	Natural changes Human changes How animals adapt to their changing environment. Positive and negative impact on living things
Key Knowledge assessment questions	How does the human digestive system work? Label the parts of the human digestive system Label all the human teeth.	Give an example of a solid, liquid and a gas. Describe the properties of solids, liquids and gases. How do solids change into liquids and vice versa.	How are sounds made? How does sound travel? How does the human ear work?	Name some appliances that run on electricity What are the names of the parts that are needed to construct a working circuit? In a circuit- how do you make a lamp light ?	What are the seven life processes? What is used to group different types of animals? What are the two different types of animals? What are the characteristics of invertebrates and vertebrates?	How does the environment change over time naturally? How are humans responsible for the negative impact on living things and their habitats? What adaptations do animals make to survive natural and

	What are the functions of human teeth? Explain why a herbivore would have different teeth to a carnivore How does the food chain work? Which plant and animals are the producer,predator and prey in this food chain?	Describe what happens to the different materials when they are heated or cooled. Explain how water evaporates and how the rate of temperature affects the process of evaporation What is the water cycle and how does it work?	What happens to the volume of sound when you increase the distance from source to the ear?	What is the difference between a complete and incomplete circuit? How does a switch work? What are good conductors of electricity? What does not conduct electricity?	What are the different groups of living things in my environment? How can habitats be affected by our local environment?	regular changes to the environment?
Cross-curricular links		Maths Weighing and recording the weight of an empty and blown up balloon (carbon dioxide) Weighing and recording a solid (piece of chocolate) and then comparing it to the weight when the solid is turned into a liquid (when melted) Recording the different temperatures needed to turn a solid into a liquid and vice versa Geography- Rivers unit (water cycle)	D&T Making a string telephone Music	Maths Venn diagram. Sorting items into battery operated and electrical groups D&T Designing and constructing our own toddler's nightlight	Literacy Big Write - Newspaper report on deforestation Persuasive poster about saving the rainforest Core Book - The Explorer	Literacy Big Write - Research and write a report on recent changes in the environment and the impact on living things Core Book - The Explorer

Subject Area – Science **Year Group - 5**

Term	Autumn One	Autumn Two	Spring One	Spring Two	Summer1	Summer 2
Knowledge	**Forces**	**Earth and space**	**Properties and changes of materials**	**Properties and changes of materials**	**Living things and their habitats**	**Animals, including humans**
Working scientifically / skills **Science Ninja skills included: Observation, Measuring, Recording Equipment**	Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Use test results to make predictions to set up further comparative and fair tests. Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. Identify scientific evidence that has been used to support or refute ideas or arguments.					
Building science capital	Stem workshop	Science museum		Cooking - bread making	Science museum School garden/grounds. Grow plants, butterflies or tadpoles	Trent or Pymmes Park
Composite knowledge	Explain unsupported objects fall towards because of the force of gravity Identify the effects of air and, wind resistance and friction Recognise that some mechanisms	Features of the sun, Earth and moon Pattern of movement of the Earth and other planets Clarify the causes of day and night Explain why it looks like the sun is	Properties of materials; Understand solubility and conductivity. Understand the separation process of different mixtures. Identify irreversible changes.		Outline the life cycle of a mammal, amphibian, insect and bird. Compare the differences between the life cycle of different animals. Explain asexual reproduction in plants.	Describe the changes that occur as a human ages. To show human growth and development on a timeline. Define a gestation period. Compare differences between a human's

	including levers, pulleys and gears allow a smaller force to have a greater effect	moving across the sky	Understand how new materials are formed.		Explain sexual reproduction in plants.	gestation period and other animals.
Component knowledge	Investigate how unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object Investigate the effects of air resistance, water resistance and friction, that act between moving surfaces Investigate pulleys levers and gears	Describe the appearance of the sun, earth and moon. 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 Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky Describe the sun, Earth and moon as approximately spherical bodies	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 Investigate how 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,		Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird Research about the work of David A. Observe life cycle changes in our local environment Grow new plants in a variety of ways-from seed, stem and root cuttings, tubers or bulbs	Identify changes humans make as they develop into old age. Indicate stages in human growth and development. Understand and explain what a gestation period is Make clear comparisons between humans and other animals gestation. Identify clear changes in puberty within humans (RSHE)

			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			
Vocabulary	forces, air resistance, water resistance , friction, mechanisms, pulleys, levers, gears, parachutes, sycamore seeds, gravity, Issac Newton	planets, solar system, rotation, spherical bodies, axis, orbit, geocentric, heliocentric	soluble, insoluble, solution, irreversible/ reversible changes , conductivity, thermal and electrical insulators, material, properties electrical conductor, electrical insulator, metal, non-metal		mammal, amphibian, insect, bird, life cycles, asexual reproduction, sexual reproduction, metamorphosis, carpel, pistil, stigma ovary, ovules, stamen, anther,filament, pollen fertilises,plantlets, runners, tubers, cuttings	gestation period, growth, cell, embryo, foetus, development, puberty, baby, child, adolescent, adult, reproduce, sexual, sperm, fertilises, egg, live young
Explanation or Conclusion sentence starters, support sentences	We see the force of gravity when… An example of air resistance is… An example of water resistance is... Friction is...	The position of the sun is… The position of the Earth is… The position of the moon is... The geocentric model was …	Solubility and conductivity are… Some properties of materials are... Mixtures can be separated…		During the first stage… Once fully grown... I believe that… It is clear...	To conclude.. for example... for instance.. In conclusion… I know this because…

	Forces affect a mechanism by... The effect of air resistance is…	The heliocentric model is... The movement of the Earth in relation to the Sun is… Day and night are caused when… It looks like the sun moves across the sky because..	An irreversible change is... New materials to be formed by...			
Links to prior knowledge	Year 3 Forces and magnets Compare how things move on different surfaces Notice some forces act at a distance Observe how magnet attract or repel Compare and group every day materials on whether their are magnetic Describe magnets as having two poles Predict whether two magnets will attract or repel each other depending on which poles are facing.	NA	Year 1 Distinguish between an object and a material Identify everyday materials. Describe the simple physical properties of everyday materials Compare and group together a variety of everyday materials Year 2 Everyday materials Identify and compare the suitability of a variety of materials for certain uses Year 3 Compare and grouping rocks on basis of appearance and properties Formation of fossils Recognise soils are made from rocks and organic matte	cont. Year 4 Compare and group materials according to whether they are solid,liquid,gas Observe that some materials change state when heated or cooled. Understand the temperature this happens at. Identify the part played by evaporation and condensation in the water cycle	Year 1 Identify wild and garden plants Identify and describe structure of plants and trees Year 2 Observe and describe how seeds grow into plants Describe how plants grow and stay healthy Year 3 Functions of the parts of plants Explore the needs of different plants for life and growth Investigate the way water is transported within plants Life cycle of plant Year 4 Recognise that living things can be grouped in a variety of ways. Explore and use classification keys. Identify and name a variety of living things in the local and wider environment.	Year 1 Identify, name and draw the basic parts of the human body. Know what part is associated with each sense Year 2 Animals have offspring that grow into adults. Basic needs of animals for survival. Importance for humans of exercise, correct diet and hygiene Year3 Animals need the right types and amount of nutrition, they get nutrition from what they eat. Identify the humans and some animals have skeletons and muscles for support and movement. Year 4 Describe the basic functions of the human digestive system. Identify different types of teeth in humans and their functions.

					Recognise that environments can change, which sometimes poses a danger to living things	Construct and interpret food chains
Key knowledge for assessment	To raise questions about the effects of air resistance. Explore the effects of air resistances. Experience forces and their effects. Explore mechanisms that are impacted by force.	Understand the position and movement of the Earth, 8 planets, relative to the Sun in the solar system (Pluto's reclassification in 2006 as a ' dwarf planet'). Understand the movement of the Moon relative to the Earth Describe the Sun, Earth and Moon as approximately spherical bodies use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky - Use a model of the sun and earth	Make a comparison between materials using prior knowledge and additional knowledge of material properties. Explain the way to decide how to recover a substance depending on its state of matter and properties. Formation of new materials		Describe the differences in the life cycle of a mammal, an amphibian, an insect and a bird Describe the life process of reproduction in some plants (asexual & sexual) and animals Know about the work of David A. Observe life cycle changes in our local environment Grow new plants in a variety of ways-from seed, stem and root cuttings, tubers or bulbs	To confidently indicate stages of human growth and development Research and discuss the gestation periods of different animals. Make comparisons between a human's gestation period and other animals.
Key knowledge assessment questions	What is gravity? What is air resistance? What is water resistance? What is its effect on a frog	What are the positions and movement of the Earth and the 8 planets, relative to the Sun ?	What is the meaning of these properties of materials- permeable, flexible and absorbent? Name materials and their properties		What is different about the life cycle of (most) mammals, and the life cycles of amphibians, insects and birds? (Think about birth) Explain what metamorphosis is	What changes occur as a human ages? Label the timeline Explain what changes occur in adulthood to old age

	or you in the swimming pool? What is friction? Could you walk without friction? Why? How do forces affect a mechanism (lever or pulley)? How does a pulley work - what does it do with the force? What are gears, how do they work? Why do larger parachutes fall slower than smaller ones? Why do streamlined objects cause less friction when moving through water>?	What causes the Earth to have different seasons? How does the moon move round the Earth? What shape are the Earth and Sun? Describe how the Earth moves in relation to the Sun Explain what causes the Earth to have a night and day What shape is the Moon? Why does it look like the sun moves across the sky	which make them good for these jobs - Cup for hot drinks - Saucepan - saucepan handle - water bottle - plastic for electrical plugs wires Which of these will dissolve in water: salt, pepper, sugar, cooking oil, tea leaves, instant coffee, jelly , sand? Explain what the term 'soluble' means and give an example of a soluble material. Name two things that would make a solid dissolve quicker in water? How would you separate these mixtures Sand and water Raisins and flour Salt and water Paper clips and rice I have a mixture of salty water, fine sand and gravel .If I didn't want to keep the water at the end. What 3 steps would I take to separate them and		Which two animals go through metamorphosis? Explain what asexual reproduction means Explain what sexual reproduction means What are the male /female organs in plants? What is pollination? What is fertilisation in plants? How did you grow new plants in class ?	Explain the changes from being a baby to being a child What is a gestation period? What differences are there between a human's gestation period and other animals? What changes occur during puberty for males and females? (RSHE)

			in what order? Sieving filtering and evaporation What are reversible /irreversible changes? Name 2 irreversible changes 2 reversible changes. What happens when you mix bicarbonate of soda with vinegar? What material makes a good insulator and why? What processes cause new materials to be formed?			
Cross-curricular links	D&T: Making parachutes or helicopters. Making pulleys Maths: data collection and measuring PE: using force e.g. pulling, pushing throwing balls Jumping-gravity Swimming: water resistance Reading comprehension-Issac Newton D&T:	D&T: 2D model poster of the lunar phases Geography: Water cycle	Maths: measuring and data collection	DT: make bread (irreversible change) Writing: Maths: measuring		RSHE

Subject Area – Science **Year Group – 6**

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer1	Summer 2
Knowledge	**Living things and their habitats**	**Electricity**	**Light**	**Evolution and Inheritance**	**Animals, including humans**	**Animals, including humans (continued)**
Working scientifically skills **Science Ninja skills included: Observation, Measurement, Recording Equipment**	Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Use test results to make predictions to set up further comparative and fair tests. Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. Identify scientific evidence that has been used to support or refute ideas or arguments.					
Building science capital	Science Museum trip School cook talk about food hygiene, storing food safely (microbes)	Stem workshop	Visitor: Builder / electrician	Natural History Museum	Visit from a Dr/Nurse	
Composite knowledge (the engine)	The classification of living things Significance of Carl Linneus as a pioneer of classification How living things are classified based on specific characteristics	The main components of a circuit The correct symbols which represent the components of a circuit Effect of changing components in an electrical circuit Function of the components Compare and give reasons for variations on how components function	How light travels How humans see things Formation of shadows	The process of evolution by natural selection The significance of Darwin's contribution to modern scientific thinking. The inheritance of features	The main parts of the human circulatory systems The functions of the heart, blood vessels and blood The function of the lungs The impact of diet , exercise and lifestyle on the way human bodies function	

Component knowledge (the wheels and cogs)	-describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals -give reasons for classifying plants and animals based on specific characteristics -plan and carry out an investigation into microbes over time	-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 -use recognised symbols when representing a simple circuit in a diagram	-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	-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	-identify and name the main parts of the human circulatory system, describe the functions of the heart, blood vessels blood and lungs -investigate the impact of exercise and diet on the human body recognise the impact of alcohol/ drugs and lifestyle on the way their bodies function -describe the ways in which nutrients and water are transported within animals, including humans	
Vocabulary	Linnaean Classification, Vertebrates, Invertebrates, Micro-organisms, Amphibians, Reptiles, Mammals, Insects viruses , bacteria fungi fish, birds, mammals, warm-blooded, cold-blooded, insects, spiders, snails, worms, flowering, non-flowering,	circuit diagram, circuit symbol, voltage	opaque, translucent, transparent, light source Light, shadow	Fossils, adaptation, Evolution, characteristics, inheritance offspring, sexual reproduction, vary, characteristics, species, evolve, evolution	heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, cycle, circulatory system, diet, drugs, lifestyle	

Explanation or Conclusion sentence starters, support sentences	Carl Linnaeus created the...the purpose of which is…. Animals can be sorted into groups by… This is because…. To make a classification key, first Microorganism can be…. an example of helpful….. and harmful types The fair test should have one variable because... A variable is… In conclusion ..	Symbols are used to…... to represent When a component in a circuit is changed….. This is because … The way components function varies because firstly… The fair test should have one variable because... A variable is… In conclusion..	The eye sees an object by…. This because.. Draw a diagram to show Reflection is ...the reasons for this are A periscope works by.. A shadow is formed when…. The size of a shadow changes when…	Evolution is the process.. In conclusion fossils can be used as evidence of evolution because…. Inheritance is… Offspring do not always look like their parents because An example of adaptation is… This is because...	The key features of the heart are…The …. is important because it… The functions of the lungs are… The …is joined to the….If you do more regular exercise your vital capacity will…… An athlete's vital capacity is…. compared to a non-athlete. This is because...	
Links to prior knowledge	Year 1 Identify wild and garden plants Identify and describe structure of plants and trees Year 2 Observe and describe how seeds grow into plants Describe how plants grow and stay healthy Year 3 Functions of the parts of plants Explore the needs of different plants for life and growth Investigate the way water is transported within plants Life cycle of plant Year 4	Year 4 Identify appliance that run on electricity Construct a simple circuit, identify basic parts. Identify whether or not a lamp will light in a simple series circuit. Recognise that a switch opens and closes a circuit. Recognise some common conductors and insulators Associate metals as good conductors.	Year 3 Light is needed to see things and dark is the absence of light. Light is reflected from surfaces. Recognising light from the sun can be dangerous, the ways to protect eyes. Recognise that shadows are formed when the light from its source it blocked by a solid object. Find patterns in the way the size of shadows change.	Year 1 Identify wild and garden plants Identify and describe structure of plants and trees Year 2 Observe and describe how seeds grow into plants Describe how plants grow and stay healthy Year 3 Functions of the parts of plants Explore the needs of different plants for life and growth Investigate the way water is transported within plants Life cycle of plant Year 4	Year 1 Identify, name and draw the basic parts of the human body. Know what part is associated with each sense Year 2 Animals have offspring that grow into adults. Basic needs of animals for survival. Importance for humans of exercise, correct diet and hygiene Year3 Animals need the right types and amount of nutrition, they get nutrition from what they eat. Identify the humans and some animals have skeletons and muscles for support and movement. Year 4	

	Recognise that living things can be grouped in a variety of ways. Explore and use classification keys. Identify and name a variety of living things in the local and wider environment. Recognise that environments can change, which sometimes poses a danger to living things Year 5 Differences in the life cycles of a mammal, bird, amphibian and insect. Describe the process of reproduction in some plants and animals.			Recognise that living things can be grouped in a variety of ways. Explore and use classification keys. Identify and name a variety of living things in the local and wider environment. Recognise that environments can change, which sometimes poses a danger to living thing Year 5 Differences in the life cycles of a mammal, bird, amphibian and insect. Describe the process of reproduction in some plants and animals. Year 3 Rocks- describe in simple terms how fossils are formed when things that have lived are trapped within rock.	Describe the basic functions of the human digestive system. Identify different types of teeth in humans and their functions. Construct and interpret food chains	
Key knowledge for assessment	Classify living things into groups according to characteristics, differences, etc. Explain their reasoning for classifying different plants and animals based on specific characteristics Name the microorganisms and explain examples of helpful and harmful types	Name and use the correct symbols to represent the components of a circuit Understand the effect of changing components in an electrical circuit Compare and give reasons for variations on how components function	Meanings of the words opaque, translucent, transparent Understand that light travels from a source in straight lines Understand how humans see things What reflection is; working scientifically to make a periscope	Explanation of evolution, , fossilisation and what a fossil is Recognise the use of fossils as evidence of evolution Compare fossil evidence Explanation of inheritance (human)understand difference between inherited and acquired characteristic -recognise that living things produce	Identify and name the main parts of the human circulatory system Describe the functions of the heart, blood vessels, blood and lungs Understanding why a healthy diet and exercise important Understand the dangers to health of alcohol and non-prescription drugs	

	Understand what a fair test and variable is		Describe why shadows are formed as the same shape as objects and why the size changes	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	Recognise reasons as to why is it important to have a healthy lifestyle	
Key knowledge assessment questions (Approx. 5)	What did Carl Linnaeus create and why? Give 2 different ways animals could be sorted into 2 groups What is the name of the original level of groupings that include 'animal' and 'plant'? Use a key to sort a group of animals For the 3 types of microorganism; an example of helpful and harmful types	What symbols can we use in a circuit? Can you create a circuit diagram? What can we use to stop the flow in the circuit? What happens to the brightness we add more bulbs to a circuit? How does the amount of voltage affect the brightness of a light bulb? What is a variable?	What do opaque, translucent, transparent mean? Draw a diagram to show how the eye sees an apple Draw and label an example of reflection Label a diagram showing how light travels in a straight line. Describe how a shadow is formed when an opaque object is put in front of a light source How does the size of a shadow change as an opaque object is moved closer to a light source?	Explain what evolution means Explain what a fossil is How long does it take to make a fossil? How can we use fossils as evidence of evolution? Compare a fossil with a skeleton (1 x difference and similarity) Explain what inheritance means Show which are inherited and acquired features of a human Using an example explain what adaptation is	What are the functions of the heart, blood and blood vessels? What are the main parts of the human circulatory system? What are the functions of the lungs? How are nutrients and water transported through the human body? What is a healthy lifestyle? What impact does alcohol and drugs have on the body?	
Cross-curricular links	geography- minibeast hunt - field work maths - data handling computing - databases	Victorians - electricity introduced into domestic homes Computing- Programming microbits	maths - measuring shadows maths - recording data	history - fossils Geography - physical features	Maths –statistics Reading- comprehension texts the circulatory and respiratory system. DT -make a model of the heart / lungs RSHE	