Purple = disciplinary knowledge Black = substantive knowledge

Science - whole school overview 2022/23 As a Scientist I can……

Term	Preschool	Rec Red = substantive. Blue = links to NC	Yr 1	Yr 2	Yr 3	Yr 4
Autumn		**Topic: In the Woods** **Communication and Language** **Talk4 Writing:** It was a Cold, Dark Night. By Tim Hopgood. Can tell you Ned likes to live amongst the leaves. (links to living things in their habitats Y2) Can name: owl, hedgehog, rabbit, fox, bat. (links to animals, Y1) **Understanding the World** **Science:** Laudato Si day - apple pressing Can tell you apples contain seeds. (links to plants Y1) Autumn Walk. Can make 2 observations about trees in the autumn. (links to seasons Y!)	**Animals, including humans (humans part taught spring 1)** **Assessment: What makes a monkey and a crocodile different?** Identify monkeys, tigers, lions, polar bears, camels, seals, whales, wolves. Also know: thrush, blackbird, sparrow, sea gull, parrot, penguin, crocodile, snake, lizard, turtle, goldfish, newt, frog Know that mammals are warm blooded, have hair or fur, live on land or in water, have skeletons on the inside of their bodies, have mothers who produce milk for their young Know that amphibians are cold blooded, live on land or in water, have moist	**Animals, including humans** **Assessment: What do humans need to live?** Know that offspring grow into adults and as they do so they change - e.g tadpoles, chicks, humans. Know that a tadpole does not look like its parent because it becomes a frog. I can give one other example of a creature that does not look like its parent when born. Know that animals need food, water and air to live. Know that to stay healthy you need to	**Rocks (make explicit link to plant unit)** **Assessment: How are rocks the same and different?** Understand that rock is a naturally occurring material. There are different types of rock Name: sandstone, limestone, slate. Explain that rocks have different properties. Rocks can be hard or soft. They have different sizes of grain or crystal. They may absorb water. Recognise that rocks can be different shapes and sizes	**States of Matter** **Assessment: What are solids, liquids and gases and how can they be changed?** Know that a solid keeps its shape and has a fixed volume. A liquid has a fixed volume but changes in shape to fit the container. A liquid can be poured and keeps a level, horizontal surface. A gas fills all available space; it has no fixed shape or volume. Explain that granular and powdery solids like sand can be confused with liquids because they can be poured, but when poured they form a heap and they do not keep a level surface when

Purple = disciplinary knowledge Black = substantive knowledge

		Woodland habitat. Can tell you 4 animals that might live in the woodlands. (links to living things in their habitats Y2) **Expressive arts and design.** **Forest School:** Using tools, gardening, making hedgehogs and animal habitats. Can use simple tools for weeding Can list 3 things that could be grown in a garden (links to plants, Y1) **Music:** Sing familiar songs to include songs with body parts Can name heads, shoulders, knees and toes (links to animals, including humans Y1)	skin and webbed feet, have skeletons on the inside of their bodies, lay eggs. Know that reptiles are cold blooded, live on land and in water, have scales, ear holes and dry skin, have skeletons on the inside of their bodies (tortoises have one on the outside too) and lay eggs. Know that fish live in water, have fins to move and breathe underwater, have skeletons on the inside of their bodies, lay eggs (in water). Know that birds are warm blooded, live on land and water, have feathers, wings and a beak, have skeletons on the inside of their bodies, lay eggs. Know that all animals lay eggs, except mammals. Know that there are some animals that eat other animals, some that eat plants and some that eat	eat a balanced diet which includes eating the right proportion of food from each of the 5 groups: fruit and vegetables, carbohydrates, dairy, protein and fat.. Know that exercise is important throughout life. Recognise that washing my hands, brushing my teeth, washing and covering my mouth when I cough/sneeze are examples of good hygiene that will prevent infections and illnesses. Measure chn from preschool to Y4 to establish how humans grow. Design a zoo animal transport cage - children should ask what animals need to	(stones, pebbles, boulders). Understand that soils are made up of pieces of ground down rock which may be mixed with plant and animal material (organic matter). The type of rock, size of rock pieces and the amount of organic matter affect the property of the soil. Explain that some rocks contain fossils and what fossils are: Fossils were formed millions of years ago. When plants and animals died, they fell to the seabed. They became covered and squashed by other material. Over time the dissolving animal and plant matter is replaced by minerals from the water.	tipped. Each individual grain demonstrates the properties of a solid. Describe melting as a change of state from solid to liquid. Freezing as a change of state from liquid to solid. The freezing point of water is 0°C. Boiling is a change of state from liquid to gas that happens when a liquid is heated to a specific temperature and bubbles of the gas can be seen in the liquid. Water boils when it is heated to 100°C. Understand that evaporation is also a change of state from liquid to gas but it happens slowly at lower temperatures and only at the surface of the liquid. Evaporation happens more quickly if the temperature is higher. Understand that

Purple = disciplinary knowledge Black = substantive knowledge

			both plants and animals. Practise asking questions e.g. what do xxx eat? Use secondary sources to research. Observe first hand what animals choose to eat - nature walk to find herbivores (caterpillars eating lettuce, greenfly eating plants). What evidence do we have that cats are carnivores? Investigate owl pellets - do we think the owl is a herbivore or carnivore? Group animals according to what they eat.	survive. Ask questions about staying healthy to the school nurse. Present findings.	Observe rocks closely using a hand lens of microscope and classify in a range of ways, based on their appearance. Devise a test to investigate the hardness of a range of rocks or devise a test to investigate how much water different rocks absorb. Observe how rocks change over time e.g. gravestones or old buildings. Research using secondary sources how fossils are formed. Observe soils closely. Classify soils in a range of ways based on their appearance.	condensation is the change back from a gas to a liquid caused by cooling. Explain that water on the surface of seas, rivers etc. evaporates into water vapour (a gas). This rises, cools and condenses back into a liquid forming clouds. When too much water has condensed, the water droplets in the cloud get too heavy and fall back down as rain, snow, sleet etc. and drain back into rivers etc. This is known as precipitation. This is the water cycle. Observe closely 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, trees moving in

Purple = disciplinary knowledge Black = substantive knowledge

					Devise a test to investigate the water retention of soils. Observe how soil can be separated through sedimentation. Ask questions and research the work of Mary Anning.	the wind. Classify materials according to whether they are solids, liquids and gases. Observe a range of materials melting e.g. ice, chocolate, butter. Investigate how to melt ice more quickly. Investigate the melting point of different materials e.g. ice, margarine, butter and chocolate. Explore freezing different liquids e.g. tomato ketchup, oil, shampoo. Use a thermometer to measure temperatures e.g. icy water (melting), tap water, hot water, boiling water (demonstration). Observe water evaporating and condensing e.g. on cups of icy water and hot

Purple = disciplinary knowledge Black = substantive knowledge

						water. Set up investigations to explore changing the rate of evaporation e.g. washing, puddles, handprints on paper towels, liquids in containers. Use secondary sources to find out about the water cycle.
Autumn 2		**Topic: Families and celebrations** **Understanding the World** **Science:** Investigate bread handwashing test. Can explain which bread was mouldiest and begin to explain why. (links to animals, including humans Y2) Seed bomb activity Can explain that flowers can grow from seeds. (links to plants, Y2) Escape from the ice experiment Can tell you that water can	1. Seasonal change 2. Plants **1. Seasonal change** **Assessment: In the UK it is usually colder and wetter in the summer. Record your ideas.** See substantive knowledge in Summer 2. Keep a whole class weather diary for a week. Also make note of what time it gets dark each day. Repeat both each term.	1. Plants (plant bulbs) 2. Living things and their habitats **1. Plants:** **Assessment: How do plants grow?** Explain that plants may grow from either seeds or bulbs. Name 3 bulbs that grow into plants: daffodil, tulip and onion.	**x 1 lesson plants** **Animals including humans : Nutrition** **Assessment: Plan a daily diet containing a good balance of nutrients.** Recognise that animals, unlike plants which can make their own food, need to eat in order to get the nutrients they need. Understand that food contains a range of different nutrients – carbohydrates	**x 1 lesson living things** **Animals, including humans (food chains taught later)** **Assessment: How does your body digest food?** Explain that adult humans have 32 teeth. Explain that there are four types of teeth: incisors for cutting; canines for tearing; and molars and premolars for grinding (chewing). Know that in an adult,

Purple = disciplinary knowledge Black = substantive knowledge

		freeze and melt. (links to states of matter, y4)	Record first hand observations from nature walks about plants/animals. . **2. Plants (over the year):** **Assessment: Do trees look the same all year round? Explain.** Explain that some trees keep their leaves all year while other trees drop their leaves during autumn and grow them again during spring. Understand that there will be lots of different plants in the local area, all with different names. Name: dandelion, daisy, cherry tree, apple tree, plum tree, elder tree (all in R outdoor area) Keep records of how plants have changed over time e.g. leaves falling off trees and buds opening. contrast what they have found out about different plants.	Understand that these then germinate and grow into seedlings which then continue to grow into mature plants. Understand that seeds and bulbs need to be planted outside at particular times of year and they will germinate and grow at different rates. Make close observations of seeds and bulbs. Classify seeds and bulbs. Research and plan when and how to plant a range of seeds and bulbs. Plant daffodil and tulip bulbs.Visit plant bed to weed regularly. Make close observations and	(including sugars), protein, vitamins, minerals, fats, sugars, water – and fibre that are needed by the body to stay healthy. Recognise that a piece of food will often provide a range of nutrients. Classify food in a range of ways. Use food labels to explore the nutritional content of a range of food items. Use secondary sources to find out the types of food that contain the different nutrients. Research whether their planned diet (from assessment) would be a good balance of nutrients. Make improvements based on evidence.	incisors are at the front of the mouth, the pointy canine is next to the incisors and moving back you have premolars, molars and wisdom teeth on each row. Know that most herbivores do not have canines, that carnivores have pronounced canines and herbivores have incisors, canines and molars. Know that sugary food/drinks stick to our teeth. Bacteria then break down the sugar to make acid, which can damage teeth. Know that the mouth, teeth, stomach, small intestine, large intestine and rectum are all part of the digestive system and describe the process of digestion: That food enters the body through the mouth. Digestion starts when the

Purple = disciplinary knowledge Black = substantive knowledge

			Make first hand observations of plants seen during nature walk. To be repeated each term.	measurements of their plants growing from bulbs. Record findings. Make comparisons between plants as they grow. **2. Living things and their habitats** **Assessment: What things are alive and what things are dead?** Explain that all objects are either living, dead or have never been alive. Living things are plants (including seeds) and animals. Dead things include dead animals and plants and parts of plants and animals that are no longer attached e.g. leaves and twigs, shells, fur, hair and feathers. Recognise that an object made of wood	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? Compare the nutrients contained in fast food. Report on findings and draw simple conclusions.	teeth start to break the food down. Saliva is added and the tongue rolls the food into a ball. The food is swallowed and passes down the oesophagus to the stomach. Here the food is broken down further by being churned around and other chemicals are added. The food passes into the small intestine. Here nutrients are removed from the food and leave the digestive system to be used elsewhere in the body. The rest of the food then passes into the large intestine. Here the water is removed for use elsewhere in the body. What is left is then stored in the rectum until it leaves the body through the anus when you go to the toilet.

Purple = disciplinary knowledge Black = substantive knowledge

				is classed as dead. Objects made of rock, metal and plastic have never been alive. Explore the outside environment regularly to find objects that are living, dead and have never lived. Sort and classify. Record findings using charts. Describe how they decided where to place things. VIsit different habitats around school and record animals found on ipad. Keep safe to build up bank of evidence across the year.		Explore the skulls of different animals and draw conclusions about the differences in teeth. Investigate and draw conclusions about how good sugary drinks and other liquids are for our teeth. Research the function of the parts of the digestive system. Create a model of the digestive system using household objects.
Spring 1		**Topic: We're going on a bear hunt** **Understanding the World** **Science:** Signs of winter nature walk.	**Humans (emphasise humans are animals)** **Assessment: Describe your face in as much detail as you can.** Understand that humans	**Uses of everyday materials** **Assessment: Why did the three little pigs end up in the house made of brick?**	**x 1 lesson plants** **Animals including humans: movement** **Assessment: How do humans move?**	**x 1 lesson living things** **Electricity** **Assessment: What do you know about circuits?** Understand that many

Purple = disciplinary knowledge Black = substantive knowledge

		Can describe 2 changes since the Autumn nature walk. (links to seasons, y1) Comparing different species of bears: their habitat, needs and diets. Can give a reason about why bears make dens to live in. (links to living things and their habitats, Y2) How to carry out an investigation. (links to working scientifically) **Expressive arts and design.** **DT:** Bear raincoat investigation- exploring and choosing materials. Can draw and label a picture about the material I chose for the bear's raincoat.	have key parts in common, but these vary from person to person. Explain that humans (and other animals) find out about the world using their senses. Know that eyes can see, mouth can taste, ears can hear, nose can smell, hands can touch. Name: head, eyes, ears, mouth, nose, teeth, eyelashes, eyebrows, arms, legs, feet, elbow, knee, ankle, toes, hands, fingers, thumb, wrist. Make first-hand close observations of parts of the body using a magnifying glass/mirror e.g. hands, eyes. Classify people according to their features. Look for patterns between people e.g. Do people with big hands have big feet?	Name materials including: glass, rock, cardboard, paper, stone, brick, metal, wood, cloth, plastic. Identify a sensible use for each of the materials named. Choose and explain the most suitable material for different situations: e.g. windows; walls of a house; car; bicycle; doll's house. Understand that an object can be made of different materials. Recognise that objects made of some materials can be changed in shape by bending, stretching, squashing e.g. clay. Classify materials and make observations· Make suggestions about alternative	Understand that humans, and some other animals, have skeletons and muscles which help them move and provide protection and support. Use secondary sources to research the parts and functions of the skeleton. Investigate patterns asking questions such as: Can people with longer legs run faster? Can people with bigger hands catch a ball better? Compare, contrast and classify skeletons of different animals - what type of skeleton do these three animals have?	household devices and appliances run on electricity. Some plug in to the mains and others run on batteries. Explain that an electrical circuit consists of a cell or battery connected to a component using wires. If there is a break in the circuit, a loose connection or a short circuit, the component will not work. Explain that a switch can be added to the circuit to turn the component on and off. Recognise that metals are good conductors so they can be used as wires in a circuit. Water (if not completely pure) also conducts electricity. Describe that non-metallic solids are insulators except for graphite (pencil lead).

Purple = disciplinary knowledge Black = substantive knowledge

		(links to everyday materials, y1)	Investigate human senses e.g. Which part of my body is good for feeling, which is not? Which food/flavours can I identify by taste? Which smells can I match?	materials for a purpose that are both suitable and unsuitable Perform a simple test to find out the properties of materials for particular uses e.g. compare the stretchiness of fabrics to select the most appropriate for Elastigirl's costume, test materials for waterproofness to select the most appropriate for a rain hat. Write a conclusion to explain key findings.		Construct a range of circuits. Explore which materials can be used instead of wires to make a circuit e.g. silver foil sharpened pencils on both ends. Classify the materials that were suitable/not suitable for wires and draw conclusions about conductors and insulators Choose switches to add to circuits to solve particular problems, such as a pressure switch for a burglar alarm. Apply their knowledge of conductors and insulators to design and make different types of switches.
Spring 2		**Topic: On the Farm** **Communication and Language**	**1.Plants** **2. Seasonal change:**	**1. Plants (plant seeds)** **2. LIving things and**	**x 1 lesson plants** **Light (make explicit link to plant unit)** **Assessment: How**	**x 1 lesson living things** **Sound** **Assessment: How do we hear sound?**

Purple = disciplinary knowledge Black = substantive knowledge

		Talk4 Writing: The Little Red Hen Can name a hen, rat, cow, cat, dog, duck, pig. (links to animals, Y1) **Understanding the World** **Science:** incubating eggs Can describe that some animals come from an egg. Can describe two ways that they took care of the chick/duckling. (links to animals, Y1) Signs of spring nature walk Can make 2 observations about trees in the spring. (links to seasons Y!) **Expressive arts and design.** **Forest School:** Cooking on fire, using tools & mint tea. Can describe what happened to the marshmallow when heated on the fire.	**1.Plants** **Assessment: Describe how plants are the same and different.** Understand that there will be lots of different plants in the local area, all with different names. Understand that these plants can be identified by the key characteristics of the plant. Name: silver birch tree, sycamore tree, ash tree (all in school grounds). Understand that plants have common parts, but they vary between the different types of plants. Know: trunk, root, leaf, flower. Know: seeds, stem, bud. Use magnifying glasses/observe plants closely in order to compare and contrast familiar plants.	**their habitats** **1.Plants:** **Add to assessment: How do plants grow?** Explain that plants may grow from either seeds or bulbs. Understand that seeds and bulbs need to be planted outside at particular times of year and they will germinate and grow at different rates. Plant seeds in March such as broad beans/cornflowers (seeds that can be sown directly to where they will flower). Make close observations and measurements of their plants growing from seeds. Record comparisons between plants as	**are shadows made?** Explain that we see objects because our eyes can sense light. Dark is the absence of light. We cannot see anything in complete darkness. Recognise different sources of light e.g. the sun, light bulbs and candles. Understand that objects are easier to see if there is more light but that some surfaces reflect light and that these objects are easier to see when there is less light. . Explain to a friend that the light from the sun can damage our eyes and therefore we should not look directly at the sun and can protect our eyes	Describe how sound travels to our ear: A sound produces vibrations which travel through a medium from the source to our ears. Different mediums such as solids, liquids and gases can carry sound, but sound cannot travel through a vacuum (an area empty of matter). The vibrations cause parts of our body inside our ears to vibrate, allowing us to hear (sense) the sound. Understand that sounds decrease in volume as you move away from the source. The loudness of the sound depends on the strength of vibrations which decrease as they travel through the medium. Recognise a sound insulator is a material which blocks sound

Purple = disciplinary knowledge Black = substantive knowledge

		(links to changes of state, Y4)	Use secondary sources (identification chart) to identify plants in local area. **2. Seasonal change:** Keep a weather diary for a week. Also make note of what time it gets dark. Record first hand observations of plants/animals from nature walks. Take photos.	they grow. **2. Living things and their habitats** **Assessment: Why can a caterpillar not live underground like a worm?** Repeat visits to different habitats around school to record animals found. Take photos on ipad. Keep safe to build up bank of evidence across the year.	by wearing sunglasses or sunhats in bright light. Understand that shadows are formed on a surface when an opaque or translucent object is between a light source and the surface and blocks some of the light. The size of the shadow depends on the position of the source, object and surface. 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 patterns in what happens to shadows when the distance between a	effectively. Explain that pitch is the highness or lowness of a sound and is affected by features of objects producing the sounds. For example, smaller objects usually produce higher pitched sounds. Classify sound sources. 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 altering the pitch or volume of objects, such as the length of a guitar string, amount of water in bottles, size of tuning forks. Measure sounds over different distances and draw conclusions. .

Purple = disciplinary knowledge Black = substantive knowledge

					light source and an object and the surface is changed. Explore shadows which are connected to and disconnected from the object e.g. shadows of clouds and children in the playground. Using scientific evidence, children to make and test shadow puppets, using a suitable material.	Measure sounds through different insulation materials and apply to a real life problem.

Purple = disciplinary knowledge Black = substantive knowledge

Summer 1		**Topic: Growing** **Communication and Language** **Talk4Writing:** The Enormous Turnip Recognise that a turnip has roots. (links to plants, Y1) **Understanding the World** **Science:** how does a plant grow Can tell you a plant needs water to grow. (links to plants, Y2) Life cycle of a butterfly Explain that a butterfly begins its life as a caterpillar. (Links to animals, Y1) **History:** Growing stories Recognise that they used to be a baby. (Links to animals, including humans, Y2)	**Everyday materials** **Assessment: Why couldn't I drink water from a bowl made of playdough?** Understand that all objects are made of one or more materials. Explain that some objects can be made from different materials e.g. plastic, metal or wooden spoons. Describe materials by their properties e.g. shiny, stretchy, rough etc. Tell you that some materials e.g. plastic can be in different forms with very different properties. Classify objects made of one material in different ways e.g. a group of objects made of metal. Classify, in different ways, one type of object made from a range of materials e.g. a collection of spoons made of different	**Plants** **Assessment: How do plants grow?** Explain that some mature plants may have flowers and some do not. Explain that in flowering plants and trees, the seeds grow behind the flower. Know that plants need water, light and the right temperature to grow and stay healthy. Understand that some plants are better suited to growing in full sun and some grow better in partial or full shade. Understand that plants also need different amounts of water and space. From a mature plant, dissect a flower (using scissors or	**x 1 lesson plants** **Forces and magnets** **Assessment: What do you know about magnets?** Describe a force as a push or a pull. When an object moves on a surface, the texture of the surface and the object affect how it moves. It may help the object to move better or it may hinder its movement (e.g. ice skater compared to walking on ice in normal shoes). Explain that a magnet attracts magnetic material. Iron and nickel and other materials containing these, e.g. stainless steel, are magnetic. Recognise that not all metals are magnetic. Understand that the	**Living things and their habitats** **Q. How do environments change over time?** Recognise that living things can be grouped in different ways according to their features and that classification keys can be used to identify and name living things. Remember that living things live in a habitat which provides an environment to which they are suited (Year 2 learning). Recognise that these environments may change naturally e.g. through flooding, fire, earthquakes etc. Understand that humans also cause the environment to change. This can be in a good way (i.e. positive human impact, such as setting

Purple = disciplinary knowledge Black = substantive knowledge

		Geography: Minibeast survey & map Can collect simple data. (Links to working scientifically: gathering and recording data) **Expressive arts and design.** **Forest School:** using tools, elderflower activities, gardening, Superworm! Name 3 creatures that live in soil. (links to habitats, Y2)	materials. Classify materials based on their properties. Compare 2 items to find the most shiny, stretchy, rough. DIscuss how we could test a material for a particular property e.g. which cloth is the most absorbent?	table knife) and seed case behind it. Take photos and discuss what you can see. Set up a comparative test to show that plants need light and water to stay healthy.	strongest parts of a magnet are the poles. Magnets have two poles – a north pole and a south pole. If two like poles, e.g. two north poles, are brought together they will push away from each other – repel. If two unlike poles, e.g. a north and south, are brought together they will pull together – attract. Recognise that magnetic forces can act without direct contact, unlike most forces, where direct contact is necessary e.g. opening a door, pushing a swing. Carry out investigations to explore how objects move on different surfaces e.g. spinning tops/coins, rolling	up nature reserves) or in a bad way (i.e. negative human impact, such as littering). Explain that these environments also change with the seasons; different living things can be found in a habitat at different times of the year. Observe plants and animals in different habitats throughout the year. Compare and contrast the living things observed. Use classification keys to name unknown living things. Classify living things found in different habitats based on their features. Create a simple identification key based on observable features Use fieldwork to explore

Purple = disciplinary knowledge Black = substantive knowledge

					balls/cars, clockwork toys, soles of shoes etc. Explore what materials are attracted to a magnet. Classify materials according to whether they are magnetic. 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 clips up off the table. Devise an investigation to test the strength of magnets.	human impact on the local environment e.g. litter, tree planting. 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.

Purple = disciplinary knowledge Black = substantive knowledge

Summer 2		**Topic: By the Sea** **Communication and Language** **Talk4Writing**: The Snail and the Whale Describe the habitat of the sea snail and the whale. (links to habitats, Y2) **Literacy** The Rainbow Fish by Micheal Pfister Recognise that fish need to live in water to survive. (links to habitats, Y2) **Understanding the World** **Science:** floating and sinking Can describe two things that floated and two things that sank. (links to uses of everyday materials, Y1)	1. **Plants** 2. **Seasonal change** **1.Plants** **Add to assessment: Describe how plants are the same and different.** Repeat walk of local area: Describe how they were able to identify and group plants. Draw diagrams showing the parts of different plants, including trees. **2.Seasonal change** **Add to assessment: In the UK it is usually colder and wetter in the summer. Record your ideas.** Explain that in the UK, the day length is longest at mid-summer (about 16 hours) and gets shorter each day until mid-winter (about 8 hours) before getting longer again. Explain that in the UK, it is usually colder and rainier in winter, and hotter and	**Living things and their habitats** **Add to assessment: Why can a caterpillar not live underground like a worm?** Explain that animals and plants live in a habitat to which they are suited. Recognise that the habitat provides the basic needs of the animals and plants – shelter, food and water. Understand that within a habitat there are different micro-habitats e.g. in a woodland – under logs, on the bark of trees, on the leaves. These micro-habitats have different conditions e.g. light or dark, damp or dry. These conditions affect which plants and animals live	**Plants** **Assessment: Describe the life cycle of a flowering plant.** Explain that many plants, but not all, have roots, stems/trunks, leaves and flowers/blossom. Explain that the roots absorb water and nutrients from the soil and anchor the plant in place. Explain that the stem transports water and nutrients/minerals around the plant and holds the leaves and flowers up in the air to enhance photosynthesis, pollination and seed dispersal. Recognise that the leaves use sunlight and water to produce the plant's food. Understand that	**Animals, including humans: food chains** **Assessment: Describe what this food chain is telling us.** Living things can be classified as producers, predators and prey according to their place in the food chain. Classify animals as herbivores, carnivores or omnivores according to the type of teeth they have in their skulls. Use food chains to identify producers, predators and prey within a habitat. Use secondary sources to identify animals in a habitat and find out what they eat. Record as a food chain.

Purple = disciplinary knowledge Black = substantive knowledge

		Geography: Plot on map where the snail and whale have visited- postcard. Explain why the whale was not happy when he was beached. (links to habitats, Y2) **Expressive arts and design.** **Forest School:** Cooking on fire, using tools, claves. Treasure hiding Can describe what happened to the marshmallow when heated on the fire. (links to changes of state, Y4) **DT:** Fruit kebabs Tell you why I need to wash my hands before preparing food. (links to animals, Y2)	dryer in the summer. GIve examples of how the change in weather causes many other changes such as: numbers of minibeasts found outside; seed and plant growth; leaves on trees; and type of clothes worn by people. Make tables and charts about the weather from weather diaries. Use information collected over the year. Research what happens to day length as the seasons change. Use information collected over the year to draw conclusions.. Present a weather forecast for each season, making reference to day length, expected weather and things you might see around you.	there. Understand that the plants and animals in a habitat depend on each other for food and shelter etc. Explain that a food chain shows the way that animals obtain their food from plants. Repeat visit to school habitats. Add to observations/records made over time. Draw and label diagrams of plants and animals. Use the information collected, as well as secondary research to draw conclusions about why different animals/plants are suited to their habitats. Create simple food chains for a familiar	some plants produce flowers which enable the plant to reproduce. Pollen, which is produced by the male part of the flower, is transferred to the female part of other flowers (pollination). This forms seeds, sometimes contained in berries or fruits which are then dispersed in different ways. Understand different plants require different conditions for germination and growth. Observe what happens to plants over time when the leaves or roots are removed. Observe the effect of putting cut white carnations or celery in coloured water.	

Purple = disciplinary knowledge Black = substantive knowledge

				local habitat from first-hand observation and research.	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. Spot flowers, seeds, berries and fruits outside throughout the year. Observe flowers carefully to identify the pollen. Observe flowers being visited by pollinators e.g. bees and butterflies in the summer. Observe seeds being blown from the trees e.g. sycamore seeds. Research different types of seed	

Purple = disciplinary knowledge Black = substantive knowledge

					dispersal. Classify seeds in a range of ways, including by how they are dispersed.	