Green Lane Infant School Science Curriculum **"In science we learn about the natural world through observations and experiments"**

Nursery	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Biology- animals and humans Naming parts of the body **Vocabulary** *Head, arm, leg, hand, foot* **Physics- The Earth** Our day- day and night. **Knowledge** The day time is when it is light outside. The night time is when it is dark outside. **Vocabulary** *Day, night, light, dark, moon, sun* In provision through the year: **Biology- animals and humans** Name groups of animals and the common animals found in groups such as farm animals, jungle animals, sea creatures, polar animals, insects, birds	**Physics- The Earth** Seasonal changes- Autumn **Knowledge** Autumn happens between summer and winter. Leaves change colour and fall from the trees. Naming collections of natural objects as tree's/ plants/ flowers/ sticks/ pebbles **Vocabulary** *Seasons, autumn, leaves, change, weather, colder, Flowers, trees, plants, sticks, pebbles.* **Chemistry- investigate materials** Explore and investigate everyday materials, using their senses, both indoor and outdoors. Use simple language to describe. **Vocabulary** *Cold, warm, hard, soft, rough, smooth.*	**Physics- light and sight** Exploring difference sources of light and introduce the idea of shadows through playing with simple light sources such as torches. **Knowledge** We can see because there is light. When we are outside, the sun is our source of light. When inside we use lights, lamps and torches to see. When light is blocked it makes a shadow. **Vocabulary** *Light, dark, sun, torch, shadow* **Physics- movement and forces** Explore and investigate how cars move and need a force (Push) to be applied to move a toy car. Explore how the use of a ramp at different angles can make the car travel faster. **Knowledge** To make something move which is still we have push it or pull it. When we push a car down a ramp it will faster than when it is on a flat surface. **Vocabulary** *Car, push, fast, slow, ramp, force.*	**Physics- The Earth** Seasonal changes- Spring Noticing the changes in the local environment. What happens to the trees? Can we spot any new flowers in our local environment? How does the weather change? Naming collections of tree's/ plants/ flowers **Knowledge** In the Spring, new plants grow and the leaves on the trees begin to grow again. **Vocabulary** *Spring, seasons, change, growing, leaves, blossom, daffodils* **Biology- animals and humans** Exploring the provision using the 5 senses to include- splashing in puddles, playing in the rain, walking through long grass and different textured surfaces. Using their 5 senses to explore Spring changes. What can you see/ hear/ smell/ feel? **Vocabulary** *Hands, eyes, nose, ears, mouth, touch, see, smell, hear, taste.*	**Biology- animals and humans** Identifying the changes which have happened to the children as they have grown from a baby into a child. How have the children grown and changed? **Knowledge** When I was born I was a baby. I have grown and now I am a child. **Vocabulary** *Baby, child, grow, change* **Biology- plants** Explore what happens to seeds when they are planted in soil. What do the seeds need to grow? **Knowledge** Seeds need water and light to grow when they are planted into soil. **Vocabulary** *Seed, soil, water, sun, grow*	**Biology- animals and humans** Learn that all living things need to be taken care of in order to grow, with a particular focus on farm animals. **Knowledge** All living things, including all the animals and humans, need to be taken care of in order to grow. Piglets grow up into pigs, chicks grown up into chicken, calves grow up to be cows. **Vocabulary** *Farm, farmer, cow, sheep, pig, duck, chicken, goat, care, food, water, shelter.*

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Reception	**Autumn 1**	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
	Biology- animals and humans Naming specific body parts. **Knowledge** These are the parts that make up my face- eyes, nose, ears, mouth. These are the names of my specific body parts- neck, chest, elbow, knee, ankle, shoulder. ***Vocabulary*** *Eyes, nose, ears, mouth, neck, chest, elbow, knee, ankle, shoulder* **Physics- The Earth** Times of the day- morning, afternoon, evening. **Knowledge** Our day can be broken down into sections. The morning occurs from when the sun rises until noon. From noon til the sunsets, is the afternoon. The evening describes the time	**Physics- The Earth** Seasonal changes- Autumn. **Knowledge** In the Autumn time, some leaves change colour, become dry and crunchy and fall from the trees. Animals prepare for Winter in different ways. Some animals hibernate. Hibernation is when animals go into a deep sleep during the coldest months. Some animals migrate, this is when they travel to a warmer climate. Some animals gather food stores so they have enough food to last the winter months when it harder to find food. ***Vocabulary*** *Autumn, leaves, autumnal colours, crunchy, dry, weather, cold, crisp, hibernation, migration, gathering*	**Physics- The Earth** Seasonal changes- Autumn into Winter What changes have you noticed in the natural world? How have the weather/ natural environment changed? Introduce the idea that the length of day/ night changes through the seasons. **Knowledge** Winter is the season between Autumn and Spring. In England, the winter months are our coldest months. This is because the Earth is tilted away from the sun. Plants and trees find it hard to grow in these colder months. The days are shorter in the Winter and the nights are longer. ***Vocabulary*** *Seasons, change, winter, cold, ice, frost, snow* **Chemistry- investigate materials** Link seasonal changes to changes of state- what happens to water when it	**Physics- The Earth** Seasonal changes- Spring Observation of the effects of Spring on our local environment. What changes have you noticed in the natural world? How have the weather/ natural environment changed? Introduce the idea that the length of day/ night changes through the seasons. Naming specific plants/ flowers and trees we encounter (**Biology- plants**) **Knowledge** Spring is the season which falls between Winter and the Summer. In the Spring, the weather begins to change, we can get a lot of rain, but the sun shines too and it starts to get warmer. Plants and trees begin to grow new leaves and flowers. Animals which have hibernated start to wake up. ***Vocabulary*** *Spring, seasons, change, blossom, buds, birch tree, cherry blossom tree, daffodils, snowdrops, lavender, day, night, longer, shorter.*	**Biology- plants** Grow and care for a plant, grown from a seed. Observe how it grows and changes over time. Name the basic parts of a plant. **Knowledge** Plants need water, nutrients from the soil, and light in order to grow. The main parts of a plant are the roots, which take in the nutrients and water from the soil, the stem, the leaves and the flower. ***Vocabulary*** *Seed, bean, soil, water, sunlight, root, shoot, leaf, stalk, flower* **Physics- light and shadow** Explore and investigate different light sources, including what happens when light is blocked (Shadows). **Knowledge**	**Chemistry- investigate materials** Exploring basic materials and their properties, talking about the differences and similarities between the different materials. **Knowledge** Everything is made of some kind of material. There are lots of different materials that all do different jobs. Wooden is usually rough and strong, metal is usually strong and can be shiny and smooth. Plastic is usually smooth and can be bendy. ***Vocabulary*** Plastic, wood, metal Hard, soft, bendy, rough, smooth **Physics- movement and forces** Exploration of floating and sinking. **Knowledge** Something is floating when it stays in the surface of the water. The water is pushing up in the object stopping it going to the bottom. Something sinks when it moves to the bottom of

	before it gets dark at night. **Vocabulary** *Morning, afternoon, evening, noon/ midday, breakfast, lunch, dinner*		gets very cold? What happens to ice when it is warmed? **Knowledge** Materials can change when you do different things to them. When you freeze water it changes from being a liquid to being a solid. It changes from water to ice. If you warm the ice it will change from a solid back into water. This is called melting. **Vocabulary** *Change, water, freeze, frozen, melt, warm, heat* **Biology- animals and humans** Healthy bodies, healthy minds - Food and exercise - Sleep and hygiene - Dental hygiene - Mental health **Knowledge** For our bodies and minds to be healthy we need to eat the right foods in healthy amounts, exercise our bodies to make them strong, have a good nights sleep, keep our body, hair and teeth clean. **Vocabulary** *Body, exercise, strong, healthy, sleep, clean, brush, teeth, calm, focus, self-care.*	**Biology- animals and humans** Changes in animals and humans over time. How have we changed since we were babies? What will happen to us next? Linked to how animals also change over time from an infant into an adult. (Life cycle of a chick) **Knowledge** All living things grow and change over time. We were once babies but we have grown and you are now children. You will continue to grow and one day will be an adult. Animals grow and change too. **Vocabulary** *Baby, child, adult, egg, chick, hen, life cycle.* **Physics- movement and forces** Exploration of magnetic forces. What materials can a magnet pick up? What materials can a magnet not pick up? **Knowledge** Magnets can be used to pick up some metals, this is because they use a force called magnetism. If a metal is magnetic, it will be attracted towards a magnet. **Vocabulary** *Magnetic, material, attract, stick, metal.* **Working scientifically with Movement and forces**	We need light in order to see. The Sun is our main source of light. When inside we can use light bulbs, lamps and torches to see. When light is blocked it causes a shadow. **Vocabulary** *Light, dark, source, sunlight, torch, bulb, block, shadow.*	the water. The water is trying to push up on an object but the push isn't strong enough to keep it on the surface. **Vocabulary** *Float, sink, water, observe, predict, evaluate.* **Working scientifically within movement and forces.** Making a simple prediction based on prior knowledge, carrying out a simple experiment, recording the results. **Physics- The Earth** Seasonal changes- Spring Observation of the effects of summer on our local environment. What changes have you noticed in the natural world? How have the weather/ natural environment changed? Introduce the idea that the length of day/ night changes through the seasons. **Vocabulary** *Seasons, change, summer, longer, shorter, daylight, sunrise, sunset.* **Chemistry- investigate materials** Link seasonal changes to changes of state- what happens to ice cream when it gets warm? What other products melt when they become warm? **Vocabulary**

				Which materials are magnetic? Predict, investigate and record.		*Change, ice cream, freeze, frozen, melt, warm, heat, sun (As a source of heat)*
Year 1	**Autumn 1**	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
	Biology- animals and humans Naming specific parts of the body. Draw and label the basic parts of the human body. Parts of the body linked to the 5 senses. **Knowledge** The 5 senses: Our 5 senses help us explore the world around us. • Sight- We use are sense of sight to find out what something looks like. • Taste- We use our sense of taste to find out whether something is good to eat. • Smell- we use our sense of smell to detect smells in our environment. • Hearing- we use our sense of hearing to	**Physics- The Earth** Seasonal changes- Autumn Names of trees (deciduous and evergreen) inc. the structure of trees. What What is the difference between deciduous and evergreen trees? What happens to deciduous trees in the autumn? How does this differ to evergreen trees in autumn? **Knowledge** A deciduous trees have leaves that loose their green colour and fall off. Evergreen trees lose a few leaves at a time all through the year. This means that evergreen tress never have bare branches and always look green. **Vocabulary** *Autumnal changes, deciduous, evergreen, leaves, broad, flat, needle-like*	**Chemistry- investigate materials** Distinguish between an object and the material from. Identify and name a variety of everyday materials. 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. **Knowledge** Everything is made of some kind of material. All materials have different properties which make them more suitable for different purposes. We can group items based on the type of material they are made of. **Vocabulary** *Wood, plastic, glass, metal, brick, paper, card, soft, hard, rough, smooth,*	**Biology- animals and humans** Name and identify a variety of animals inc carnivore/ herbivores and omnivores. Describe and compare the structure of common animals. (As part of this teaching mention the different habitats animals live in, giving a reason why) **Knowledge** A carnivore is an animal that feeds on other animals. A herbivore is an animal who only feeds in plants. An omnivore is an animal that feeds on plants and animals. **Vocabulary** *Carnivore, herbivore, omnivore, teeth, flat, fang, sharp, parts of the body previously taught plus, paws, fins, wings, tail, scales, fur, feathers.*	**Biology- plants** Identify and name and describe a variety of common plants including garden plants and wild plants. Look at the lifecycle of a plant, through planting and keeping a record. Identify, describe and record the basic structure of a variety of common flowing plants, including roots, stem/ trunk, leaves and flowers through observation. **Knowledge** All plants grow from a seed. There are lots of different plants. These include flowers, trees and grasses. Most plants are made up of a stem, flower, leaves and root. The roots usually grown under the soil and take in water from	**Physics- The Earth** Revisiting the observations made of changes across the four seasons as they have occurred through the calendar year including how the seasonal changes affect the weather and length of the day. Seasonal report from the year. **Knowledge** We experience 4 seasons through the year. Each season is a part of the year with its own weather patterns and the number of daylight hours changes from season to season. The seasons happen because the Earth is tilted. In our summer, our part of the world is tilted towards the sun. In our winter, our part of the world is tilted away from the sun.

	hear and detect different sounds. • Touch- we use our sense of touch to explore texture. **Vocabulary** *Tongue, nostril, ear drum* *Sight, eyes, vision, taste, tongue, taste buds, bitter, sweet, sour, nose, nostril, aroma, ears, hearing, sound, touch, hand, nerves, rough, smooth, soft, hard* (As part of the teaching of the 5 senses: **Physics- light and sight** Observe and name a variety of light sources including electric lights, flames and the sun, explaining that light travels from the source to our eyes in order for us to see. **Physics- sound and hearing** Observe and name a variety of sources of sound, noticing that we hear with our ears and how sounds can vary in their volume and pitch.		*stretchy, stiff, shiny, dull, flexible, waterproof.* **Working scientifically within investigating materials** Investigation: what would be the most suitable material to make an umbrella? **Physics- The Earth** Seasonal changes- Winter Observe the changes which occur to the natural environment as the seasons change paying close attention to the affect this has on the weather and the length of day. **Knowledge** Winter is the season between Autumn and Spring. In winter the Earth is tilted away from the sun. In England the days are shorter in the Winter and the nights are longer. This is due to the position of the Earth compared to the Sun. **Vocabulary** *Winter, sunrise, sunset*	**Physics- The Earth** Seasonal changes- Spring Observe the changes which occur to the natural environment as the seasons change paying close attention to the affect this has on the weather and the length of day. **Vocabulary** *Spring, sunrise, sunset*	the soil so the plant can grow and stay healthy. Stems hold up leaves and flowers, helping them grow towards the sunlight. Leaves are where the plant makes food. Flowers make seeds which grow into new plants. **Vocabulary** *Leaves, flowers, petals, fruit, Roots, bulb, seed, trunk, stem. Names of plants in the local environment.*	**Vocabulary** *Seasonal changes, summer, autumn, winter, spring, earths rotations, sun set, sunrise, position, length of day, compare, contrast.* **Working scientifically (revisit) Physics- The Earth** Investigate: How does the position of the sun change through the day? Investigate, predict, observe, record. Create a report of what they have found out from their observations across the year.

	Working scientifically within animals and humans Investigation: 5 senses stations. Which sense are you using to investigate the materials available. Observe and record.					
Year 2	**Autumn 1**	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
	Biology- animals and humans (Focus on humans) Humans change and develop from babies to adults. **Knowledge** Humans go through the following stages of growth: baby, toddler, child, teenager, adult. Humans give birth to live offspring (life cycle) **Vocabulary** *Baby, toddler, child, teenager, adult, senior citizen* Investigate the basic needs of humans for survival- water, food, air	**Chemistry- investigate materials** Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick/rock, and paper/cardboard for particular uses. **Knowledge** Everything is made of some kind of material. All materials have different properties which make them more suitable for different purposes. We can describe a material by its texture (rough, smooth, slippery, hard, soft) or by its appearance (shiny, dull, transparent, opaque, translucent). We can	**Biology- investigate living things** Explore and compare the differences between things that are living, that are dead and that have never been alive. How can we tell what is what is living, has lived or has never lived? Does it move? Does it reproduce? Is it sensitive? Does it need nutrition? Does it excrete? Does it respire? Does it grow? **Knowledge** You can tell if something is alive by looking at what it does. All things that are alive or have lived will move, need nutrition, be sensitive to its surroundings, respire, remove their waste, grow and reproduce.	**Biology- animals and humans (focus on animals)** Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, including pets). Notice that animals, have offspring which grow into adults. Watch and observe the life cycle of a frog. Investigate and describe the basic needs of animals, for survival. **Knowledge** A reptile is a cold blooded animal that breathes air and usually	**Biology- plants** Observe and describe how seeds and bulbs grow into mature plants. Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. **Knowledge** Plants are living things that use energy from the sun to make food. Stems have tubes inside them that carry water and food to all of the different parts of a plant. **Vocabulary**	**Biology- animals and humans** **Habitats and food chains** Identify and name a variety of plants and animals in their habitats, including micro-habitats. Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food. **Knowledge** A habitat is the place where a plant or animal lives, depending on the needs of the animal or plant. For

	Humans need water to stay hydrated, food for nourishment and air to breath. Humans need oxygen to survive. **Vocabulary** *Water, hydrate, food, nourishment, air, breathing, oxygen* How do humans stay healthy? **Knowledge** Humans need to exercise to make you strong. Exercise strengthens your muscles, joints, lungs and heart, Eating a well balanced diet and drinking water is important for your body. **Vocabulary** *Exercise, strength, coordination, agility, nutritious, balanced diet, hygienic, teeth brushing, washing, cleanse, self care*	also describe them by their weight (light or heavy) and their strength (Strong and fragile). When we talk about how materials behave we could use the words flexible, stretchy, rigid, waterproof or absorbent to describe them. **Vocabulary** *Wood, metal, plastic, glass, brick, rock, paper, cardboard, rubber, fur, cotton, wool. Words to describe why certain materials are suitable such as: soft, hard, rough, smooth, stretchy, stiff, shiny, dull, flexible, waterproof, absorbent, opaque, transparent and translucent, strong, fragile* Explore how the shapes of solid objects can be changed through squashing, bending, twisting and stretching. **Vocabulary** *Squash, bend, twist, stretch* **Working scientifically within investigating materials**	**Vocabulary** Living, dead, non living, movement, reproduce, sensitive, touch, nutrition, excrete, respire, grow.	has a skin that is covered with scales or bony plates. An amphibian can live on land or in water. Amphibians have gills so they can breath in water. Reptiles and Amphibian's reproduce by laying eggs which later hatch. Mammals are warm blooden animals which generally give birth to live young. Invertebrates are animals which do not have a vertebrate or bony skeleton. **Vocabulary** *Life cycle, frog, froglet, tadpole, frogspawn, Reproduce, offspring, grow, adults, fish, amphibians, reptile, bird, mammal, human, survival, water, food, shelter, common structure, herbivore, carnivore, omnivore.*	*Seeds, bulbs, healthy, water, light, temperature, soil, nutrients, leaves, flowers, blossom, petal, fruit, roots, trunk, branches, stem, grass, clover, buttercup, tulip, (plus other flowers in the grounds) oak, birch, pine (plus other trees found in the grounds) lettuce, tomatoes, cucumber, radish, herb (plus any other edible plants grown in the grounds).* **Woking scientifically within Biology plants** Investigation: what happens to a plant when it is placed in different conditions? What will happen to a white flower when it is placed in coloured water? Predict, observe and record.	example. animals and plants that like shade may live or grow in woodlands. Animals or plants that need a lot of water or live in water, may live in a pond or lake. A food chain shows how each living thing gets its food. Some animals eat plants and some animals eat other animals. **Vocabulary** *Habitat, micro habitat, food chain, field, hedgerow, pond, woodland, seashore, ocean, rainforest, arctic, desert.* **Working scientifically- biology animals and humans** Investigate: what makes a good micro habitat for an insect? Research, investigate, plan and carry out the task. **<u>Physics- The Earth</u>** Observe and describe weather associated with seasons. Describe how the length of day varied dependent on the season. How does this affect us?

		Investigation: what would be the most suitable material to make a bridge to hold a weighted object? Investigate, predict, observe, record.				**Knowledge** We experience 4 seasons through the year. Each season is a part of the year with its own weather patterns and the number of daylight hours changes from season to season. The seasons happen because the Earth is tilted. In our summer, our part of the world is tilted towards the sun. In our winter, our part of the world is tilted away from the sun. **Vocabulary** *Compare, contrast, describe, explain* *Rain, sleet, hail, ice, snow, sun, heat wave, wind, storm, thunder, lightning, day length, sunrise, sunset, earths rotation, position.*