**Over St. John's CE Primary School**

'Let your light Shine before others.' Matthew 5:16

**Progression of Knowledge and Skills in Science**

| Skills Progression | EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
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| **Five types of experimental skills**<br>**1. Observe over time**<br>**2. Pattern seeking**<br>**3.Identifying, classifying and grouping**<br>**4. Comparative and Fair test**<br>**5. Research using secondary sources** | 1. I can observe changes over time<br>2. I can observe changes and patterns<br>3. I can identify and classify<br>4. I can perform simple tests<br>4. I can perform a fair test with adult support | 1. I can observe changes over time<br>2. I can observe changes and patterns<br>3. I can identify and classify<br>4. I can perform simple tests<br>4. I can perform a fair test with adult support | 1. I can use simple equipment to observe closely including changes over time<br>2. I can use observations and ideas to suggest answers to questions noticing similarities, differences and patterns<br>3. I can identify, group and classify<br>4. I can perform simple comparative tests<br>5. I can gather and record data to help in answering questions including from secondary sources of information | 1. I can make systematic and careful observations over time<br>2. I can ask questions surrounding patterns I have found in data.<br>3. I can gather, record, classify and present data in a variety of ways<br>4. I can set up simple practical enquiries, comparative and fair tests<br>5. I can use secondary sources with adult support to help clarify results seen. | 1. I can make systematic and careful observations over time, looking at similarities and differences.<br>2. I can ask questions surrounding patterns I have found in data.<br>3. I can gather, record, classify and present data in a variety of ways to help in answering questions<br>4. I can set up simple practical enquiries, comparative and fair tests<br>5. I can use secondary sources with adult support to help clarify results seen. | 1. I can observe over time, asking pertinent questions about similarities and differences.<br>2. I can ask questions surrounding patterns I have found in data as to why something I have observed has happened.<br>3. I can classify, group and present data in a series of ways to help in answering questions<br>4. I can take measurements, using a range of scientific equipment, with increasing accuracy and precision.<br>5. I can use secondary sources to help interpret results seen. | 1. I can recognise things change over time, and can ask pertinent questions and suggest reasons for similarities and differences over time<br>2. I can ask questions surrounding patterns I have found in data as to why something I have observed has happened.<br>3.I can develop and use keys and other information to classify and describe objects in ways to help answer questions<br>4. I can take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate<br>5. I can use secondary sources to help interpret results seen. |
| **Questions** | I can ask simple questions. | I can ask simple questions and recognise that they can be answered in different ways.<br><br>I can use my observations and ideas to suggest answers to questions.<br><br>I can communicate my ideas, what I can do and what I can find out in different ways. | I can ask simple questions and recognise that they can be answered in different ways including use of scientific language from the national curriculum.<br><br>I can communicate my ideas, what I can do and what I can find out in different ways. | I can ask relevant questions to answer my questions in different ways using scientific language from the national curriculum. | I can ask questions surrounding patterns I have found in data. I can ask relevant questions and use different types of scientific enquiries to answer them using scientific language from the national curriculum.<br><br>I can ask questions surrounding patterns I have found in data.<br>I can develop a deeper understanding through talk, asking questions about scientific phenomena, analysing functions and interactions more systematically. | I can plan different types of scientific enquiries to answer questions, including recognising variables where necessary.<br><br>I can ask questions surrounding patterns I have found in data as to why something I have observed has happened.<br><br>I can observe over time, asking pertinent questions about similarities and differences. | I can plan different types of scientific enquiries to answer my own or others' questions, including recognising and controlling variables where necessary.<br><br>I can recognise things change over time, and can ask pertinent questions and suggest reasons for similarities and differences over time. |

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| **Using Scientific Equipment** | I can use magnifying glasses to look at objects in more detail I can measure out ingredients using scientific and mathematic equipment. | I can use simple equipment to observe closely I can use hand lenses and egg timers. | I can use simple equipment to observe closely including changes over time.<br><br>I can ask my own questions about what I notice I can use hand lenses and egg timers. | I can set up simple practical enquiries, comparative and fair tests.<br><br>I can make systematic and careful observations over time.<br><br>I can take measurements using standard units, using a range of equipment.<br>I can set up simple practical enquiries, comparative and fair tests. | I can set up simple practical enquiries,<br>comparative and fair tests.<br><br>I can take measurements, using a range of scientific equipment, with increasing accuracy and precision. | I can make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. | I can take measurements, using a range of scientific equipment, including thermometers and data loggers, with increasing accuracy and precision, taking repeat readings when appropriate.<br><br>I can make my own decisions and select the most appropriate type of scientific enquiry to use and recognise how to set up a comparative and fair test. |
| **Recording Data** | I can record observations in ways that are important and meaningful to me. | I can gather and record data to help in answering questions.<br><br>I can use simple scientific language such as: with help. | I can gather and record data to help in answering questions including from secondary sources of information. | I can gather, record, classify and present data in a variety of ways.<br><br>I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. | I can gather, record, classify and present data in a variety of ways to help in answering questions.<br><br>I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. | I can record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.<br><br>I can use test results to set up further comparative and fair tests. | I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.<br><br>I can use test results to make predictions to set up further comparative and fair tests. |
| **Reporting on Findings** | | | | I can report on findings from enquiries, using presentations of results and conclusions I can use results to draw simple conclusions.<br><br>I can use secondary sources with adult support to help clarify results seen. | I can report on findings from enquiries, including<br>oral and written explanations, displays or<br>presentations of results and conclusions.<br><br>I can use results to draw simple conclusions, make predictions for new values and suggest<br>improvements.<br><br>I can use secondary sources with adult support to<br>help clarify results seen.<br>I can classify, group and present data in a series of ways to help in answering questions. | I can report and present findings from enquiries in oral and written forms such as displays and other presentations.<br><br>I can use results to draw more complex conclusions, make predictions for new values and suggest improvements.<br><br>I can use secondary sources to help interpret results seen.<br><br>I can classify, group and present data in a series of ways to help in answering questions. | I can 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<br>presentations.<br>I can use results to draw more complex conclusions, make predictions for new values and suggest<br>improvements and raise further questions.<br><br>I can use secondary sources to help interpret results seen.<br><br>I can develop and use keys and other information to classify and describe objects in ways to help<br>answer questions. |

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| **Using Scientific Evidence** | | | | I can identify differences, similarities or changes related to simple scientific ideas and processes.<br><br>I can use straightforward scientific evidence to answer questions or to support my findings. | I can identify differences, similarities or changes related to simple scientific ideas and processes.<br><br>I can use straightforward scientific evidence to answer questions or to support my findings . | I can identify scientific evidence that has been used to support or refute ideas or arguments. | I can justify and evaluate my own and other people's scientific ideas related to topics in the national curriculum (including ideas that have changed over time), using evidence from a range of sources. |
| **Vocabulary** | question, answer, find out, observe, measure, record. | question, answer, find out, identify, observe, classify, sort, group, describe, test, compare, contrast, measure, length, height, mass/weight, time, temperature, record, results, table, chart, map, pictograph, block graph, bar chart, diagrams, equipment, data. | | research, comparative test, fair test, systematic, careful observation, accurate measurements, data, gather, record, classify, present, labelled diagrams, keys, bar chart, tables, explanations, conclusion, predictions, differences, similarities, changes, evidence, improve, secondary sources, guides, construct, interpret. | | plan, variable, measurements, accuracy, precision, repeat readings, reporting, scientific diagrams, labels, classification, keys, scatter graph, bar graph, line graph, causal relationship, explanation, degree of trust, evidence, support, refute, describe, patterns, systematic, quantitative measurements. | |

| | Progression of knowledge and skills based on subject areas | | | |
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| Plants | **Hatchmere** | **Sandymere** | **Delamere** | **Oakmere** |
| | I know that plants need sun and water to grow.<br><br>I know some plants grow from seeds.<br><br>I know most plants need soil and nutrients (food) to grow.<br><br>*Key vocabulary:*<br>*Flower, plant, bulb, seed, root, leaves.* | NC Statements<br>-Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.<br>-Identify and describe the basic structure of a variety of common flowering plants, including trees<br><br>Knowledge<br>Plants that we choose to grow in a garden are called garden plants. There are lots of different types of garden plants. Some grow flowers but others do not. Examples of garden plants are sweet pea, sunflower, rose, lavender, iris, fuchsia and pansy.<br><br>A wild plant seed grows where it falls. It doesn't need to be planted or cared for as it grows. Examples of wild plants are buttercup, nettles, ivy, dog rose, clover brambles, dandelion and daisy.<br><br>A plant is made of different parts. Plants have roots, a stem, leaves and flowers. Some plants also have fruit.<br><br>A tree is also a type of plant. Trees have roots, a trunk, branches, bark and leaves. A tree might also have blossom or fruit.<br><br>A deciduous tree loses its leaves in Autumn. An evergreen tree keeps its green leaves all year round, even in the winter.<br><br>Vocabulary<br>garden plant, wild plant, deciduous, evergreen, roots, stem, leaves, flowers, fruit, trunk, bark | NC Statements<br>-Observe and describe how seeds and bulbs grow into mature plants.<br>-Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.<br><br>Knowledge<br>Plants grow from a seed or a bulb.<br><br>Inside a seed or bulb is everything that the plant needs to start growing (germinate). To germinate the seed or bulb needs water and the right temperature.<br><br>All plants have a lifecycle. Different types of plants have slightly different life cycles. Bean plant – seed, gemination, roots, leaves, flowers, fruit, seed dispersal, dies. Daffodil – blub, roots, shoots, stem and leaves, flower, wilts. Oak tree- seed, seedling, sapling, oak tree, seed dispersal.<br><br>A plant needs water, light and the right temperature to grow and stay healthy.<br><br>If a plant does not get everything it needs it they begin to die and this can be seen in their leaves or stems.<br><br>Different plants need different amounts of water and light and different temperatures to grow and stay healthy.<br><br>Vocabulary<br>germination, shoot, seed dispersal, sunlight, water, temperature | NC Statements<br>-Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.<br>-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.<br>-Investigate the way in which water is transported within plants.<br>-Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal<br><br>Knowledge<br>Flowering plants have these different parts; roots, stem or trunk, leaves and flowers. They might also have fruit.<br>Roots support the plant, take up water, air and nutrients from the soil and can store food and water.<br>Stem or trunk supports the plant and hold leaves and flowers. It also transports water and food around the plant.<br>Leaves absorb sunlight to make the plant's food.<br>Flowers produce seeds that can grow into new plants.<br>Fruit encases a plant's seeds and is often eaten by animals.<br><br>For plants to grow and stay alive they need air, light, water, space, nutrients and the correct temperature.<br><br>The roots and stem are important for transporting water around a plant. First, plants absorb the water they need through their roots. Then, the water is transported up through the stem and to the leaves and flowers.<br><br>Flowers play an important role in the life cycle of flowering plants. They hold all the parts that a plant needs to produce new plants. This is called reproduction.<br><br>Flowers have different parts that help the plant to reproduce. The main parts are that are needed are the anther, stigma, petal and ovary.<br><br>For a flower to reproduce, pollination needs to happen. Pollination is when pollen from the anther is transferred to the stigma.<br>Some flowers are pollinated by animals and some by the wind.<br>After pollen has landed on the stigma it moves down to the flower's ovary. This is called fertilisation. When the |

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| | | | | plant has been fertilised, seeds grow inside the ovary. This is called seed formation.<br>After the seeds have formed, many plants spread their seeds over a wider area. This is called seed dispersal. Seeds can be dispersed by wind, water, exploding or being carried or eaten by animals.<br><br><u>Vocabulary</u><br>pollination, seed formation, seed dispersal, roots, nutrients, stem/trunk, leaves, flowers, reproduction, growth, pollen, anther, stigma, ovary, pollinator. |

| | **Hatchmere** | **Sandymere** | **Delamere** | **Linmere** | **Blakemere** |
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| Materials/ State of matter | I know that objects are made from different materials.<br><br>I know about similarities and differences in relation to places, objects, materials and living things.<br><br>I know about the features of my immediate environment and how environments might vary from one another.<br><br>I know how to make observations of animals and plants and explain why some things occur, and talk about changes.<br><br>*Key vocabulary:*<br>*melt, freeze, ice, mix, stir* | <u>NC Statements</u><br>- distinguish between an object and the material from which it is made.<br>- identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.<br>- describe the simple physical properties of a variety of everyday materials.<br>- compare and group together a variety of everyday materials on the basis of their simple physical properties.<br><br><u>Knowledge</u><br>Everything is made from a material. Objects are made from one or more materials.<br><br>Common materials include: wood, plastic, glass, metal, water, rock, fabric and paper.<br><br>We can describe materials using their properties. For example, glass is transparent and hard; fabric is soft and flexible.<br><br>Materials have different properties. These include: hard, soft, stretchy, stiff, shiny, dull, rough, smooth, waterproof, absorbent, transparent, opaque.<br><br>Different materials are used for different purposes. This is because of their properties. For example, umbrellas are made from waterproof materials.<br><br>The same object can be made from different materials. A spoon can be made from metal, plastic, or wood.<br><br>The same material can be used to make different objects. Wood can be used to make a chair, a table, or a pencil. | <u>NC Statements</u><br>- identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.<br>- find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.<br><br><u>Knowledge</u><br>Materials are chosen for objects based on their properties.<br><br>Different materials can be used to make the same thing.<br><br>The properties of a material affect their suitability, making them either suitable or unsuitable for particular uses.<br><br>Some materials can change shape when you squash, bend, twist or stretch them.<br><br>Materials that are soft, bendy or stretchy are often easier to change the shape of than materials that are hard, rigid or strong.<br><br>Recycling is when materials are reused to make new things.<br><br><u>Vocabulary</u><br>Suitability, properties, flexible, brittle, rigid, translucent, squash, twist, bend, stretch, recycle, recyclable | <u>NC Statements</u><br>- compare and group materials together, according to whether they are solids, liquids or gases.<br>- 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).<br>- identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.<br><br><u>Knowledge</u><br>The Three States of Matter are:<br>Solid: Particles are tightly packed and hold their shape.<br>Liquid: Particles are close but can move around each other; they take the shape of their container.<br>Gas: Particles are far apart and move freely; gases fill all available space.<br><br>Some materials can change from one state to another.<br>Melting: Solid → Liquid (e.g., ice melting to water)<br>Freezing: Liquid → Solid<br>Evaporation: Liquid → Gas<br>Condensation: Gas → Liquid<br>Boiling Point: Temperature at which a liquid becomes a gas<br>Melting Point: Temperature at which a solid becomes a liquid<br><br>The water cycle is the movement of water within the Earth's atmosphere and the way that it is stored in its various states of matter.<br>Evaporation – When the surface of the water is heated, the water will begin to | <u>NC Statements</u><br>- 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<br>- know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution<br>- use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating<br>- give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic<br>- demonstrate that dissolving, mixing and changes of state are reversible changes<br>- 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<br><br><u>Knowledge</u><br>Materials have different properties such as hardness, solubility, transparency, conductivity (electrical and thermal), and magnetism.<br><br>Soluble materials dissolve in liquids to form solutions (e.g., sugar in water).<br><br>Insoluble materials do not dissolve (e.g., sand in water).<br><br>Conductors allow heat or electricity to pass through (e.g., metals); insulators do not (e.g., wood, plastic). |

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| | | Vocabulary<br>Material, object, properties, hard, soft, shiny, dull, stretchy, squashy, stiff, bendy, rough, bumpy, smooth, transparent, opaque, waterproof, absorbent. | | change from a liquid to a gas through evaporation.<br>Condensation – As the water vapour rises, the conditions become much cooler.<br>The water vapour begins to change back into a liquid, forming clouds.<br>Precipitation – Once the water vapour has condensed into liquid water, it will fall back to the ground through precipitation.<br><br>Evaporation and condensation are key processes in the water cycle. Temperature affects the rate of evaporation.<br><br>Vocabulary<br>States of matter, solid, liquid, gas, change of state, melting, freezing, evaporation, condensation, boiling point, melting point, particle. | Reversible changes include melting, freezing, evaporating, and dissolving.<br><br>Irreversible changes produce new materials and cannot be undone (e.g., burning, rusting, cooking).<br><br>Filtering, sieving, and evaporating are methods used to separate mixtures.<br><br>Chemical reactions can result in the formation of new materials (e.g., vinegar and bicarbonate of soda producing gas).<br><br>Vocabulary<br>Soluble, insoluble, conductor, insulator, reversible change, irreversible change, evaporation, filtration, chemical reaction |

| Animals, including humans | **Hatchmere** | **Sandymere** | **Delamere** | **Oakmere** | **Linmere** | | **Blakemere** |
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| | I know that different animals have different body parts.<br><br>I know that different animals like different foods and live in different places.<br><br>I know that some animals are big and some animals are small.<br><br>I know that butterflies do not start out looking like butterflies.<br><br>I know how to talk about different places animals might live.<br><br>I know that some animals hibernate.<br><br>I know that some animals are adapted to live under the sea and that humans are adapted to live on land. | NC Statements<br>· identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.<br>· identify and name a variety of common animals that are carnivores, herbivores and omnivores.<br>· describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets).<br>· identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.<br><br>Knowledge<br>There are lots of different animals. Scientists sort them into groups to help to identify them.<br><br>The five animal groups I know are amphibians, birds, fish, mammals, reptiles.<br><br>All living things need to eat. We call what they eat their diet. | NC Statements<br>- Notice that animals, including humans, have offspring which grow into adults.<br>- Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).<br>- Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.<br><br>Knowledge<br>Some animals give birth to live young. Some animals lay eggs which the young hatch from. Both of these types of young then develop into adults.<br><br>Some offspring look like their adult when they are born and some do not.<br><br>All young animals change as they go through the different stages of their life cycle and grow into adults.<br><br>To stay alive, all animals have three basic needs for survival: air, water, food. | NC Statements<br>- Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat<br>- Identify that humans and some other animals have skeletons and muscles for support, protection and movement.<br><br>Knowledge<br>Animals need nutrition to survive.<br><br>Humans and some animals get nutrition from food.<br><br>A balanced diet includes carbohydrates, proteins, fats, vitamins, and minerals.<br><br>Humans and some animals have skeletons and muscles for support, protection, and movement.<br><br>The human skeleton has over 200 bones.<br>Muscles work in pairs to move bones at the joints. | NC Statements<br>- describe the simple functions of the basic parts of the digestive system in humans<br>- identify the different types of teeth in humans and their simple functions<br>- construct and interpret a variety of food chains, identifying producers, predators and prey<br><br>Knowledge<br>The digestive system breaks down food so the body can absorb nutrients.<br><br>The main parts of the digestive system include: mouth, oesophagus, stomach, small intestine, large intestine, rectum, and anus.<br><br>Humans have teeth which are hard structures in the mouth that help with biting and chewing food.<br><br>Humans have four types of teeth: incisors (cut), canines (tear), premolars and molars (grind). | *(Taught in Living Things unit and in Y5 PSCHE lessons)*<br>I know the changes as humans develop to old age, including changes experienced in puberty and how to describe them. | NC Statements<br>- identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood<br>-describe the ways in which nutrients and water are transported within animals, including humans.<br>-recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function<br><br>Knowledge<br>The human circulatory system has three parts: the heart, blood vessels (veins, arteries, capillaries) and blood.<br><br>The heart is a muscle that pumps blood around the body. It is made up of four chambers (enclosed spaces).<br><br>Blood vessels carry blood around the body. Arteries carry oxygenated blood away from the heart. Veins carry deoxygenated blood toward the heart. Capillaries are the smallest blood vessels in the body and they carry blood into organs and tissues. |

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| | I know that if I wash my hands then that will kill off germs.<br><br>I know about the importance of a healthy diet.<br><br>I know I cannot eat foods like chips and pizza every day and I need a variety of food.<br><br>I know about the importance of a healthy exercise regime.<br><br>I know that exercise is good for my body.<br><br>*Key vocabulary: baby, child, toddler, adult, body part (naming them)* | Animals can be sorted into three groups of diets: carnivore, herbivore, omnivore.<br><br>The human body is made up of lots of different parts and each part has its own job to do. Humans have 5 senses: sight, hearing, touch, taste, smell and these link to different parts of the body.<br><br>Our senses help us to understand the world. They also help to keep us safe.<br><br><u>Vocabulary</u><br>amphibians, birds, fish, mammals, reptiles, carnivore, herbivore, omnivore, senses, sight, hearing, touch, taste, smell. | To grow into a healthy adult, we must eat the right types of food in the right amount and exercise.<br><br>Being active and exercising keeps our bodies and minds healthy.<br><br>To stop germs from spreading, it is important to be hygienic. This means keeping ourselves and things around us clean.<br><br><u>Vocabulary</u><br>Adult, develop, life cycle, offspring, young, live young, diet, exercise, germs, hygiene. | Animals can be vertebrates or invertebrates.<br><br><u>Vocabulary</u><br>Nutrition, skeleton, muscles, bones, joints, vertebrate, invertebrate, balanced diet, carbohydrates, proteins, fats, vitamins, minerals. | A food chain shows how energy is passed from one living thing to another.<br><br>In a food chain:<br>Producer: usually a plant, makes its own food.<br>Consumer: eats other organisms.<br>Predator: hunts other animals.<br>Prey: is hunted by predators<br><br><u>Vocabulary</u><br>Digest, oesophagus, stomach, small intestine, large intestine, rectum. | | Blood is very important. It transports gases (mostly oxygen and carbon dioxide), nutrients (including water) and waste products.<br><br>Blood is made up of four parts. Plasma is the liquid part of blood and contains water and protein. Red blood cells carry oxygen through your body. Platelets help you stop bleeding when you get hurt. White blood cells fight infection when you are ill.<br><br>To stay healthy, humans must maintain a healthy body through their diet and exercise.<br>Diet:<br>A healthy diet involves eating the right types of nutrients in the right amounts.<br>Regular exercise:<br>strengthens muscles including the heart muscle; improves circulation; increases the amount of oxygen around the body; releases brain chemicals which help you feel calm and relaxed; helps you sleep more easily; strengthens bones.<br><br>Drugs, alcohol and smoking have negative effects on the body.<br><br><u>Vocabulary</u><br>Oxygenated blood, Deoxygenated blood, nutrients, drugs, alcohol. |

| Living things and their habitats | Hatchmere | Delamere | Oakmere | Linmere | Blakemere |
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| | I know similarities and differences in relation to living things and their habitats.<br><br>I know about the features of my own immediate environment and how environments might vary from one another and can talk about them.<br><br>I know how to make observations of animals and plants and explain why some things occur, and talk about changes. | <u>NC Statements</u><br>- explore and compare the differences between things that are living, dead, and things that have never been alive.<br>- 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. | <u>NC Statements</u><br>-Recognise that living things can be grouped in a variety of ways.<br>-Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment<br>-Recognise that environments can change and that this can sometimes pose dangers to living things. | <u>NC Statements</u><br>-Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.<br>-Describe the life process of reproduction in some plants and animals.<br><br><u>Knowledge</u><br>As part of their lifecycle, plants and animals reproduce. | <u>NC Statements</u><br>- describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals<br>- give reasons for classifying plants and animals based on specific characteristics<br><br><u>Knowledge</u> |

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| | *Key vocabulary: nocturnal, woodland, forest, pond* | - identify and name a variety of plants and animals in their habitats, including microhabitats.<br>- 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.<br><br><u>Knowledge</u><br>Living things grow, move, reproduce, and respond to their environment.<br>Dead things were once alive but are no longer.<br>Never alive things are objects that have never had life (e.g., rocks, plastic).<br><br>All living things need air, food, water, and shelter to survive.<br><br>A habitat is the natural home or environment of a living thing.<br><br>Habitats provide the basic needs for survival. Examples include woodlands, oceans, deserts and polar regions.<br><br>Microhabitats are small, specific habitats like under logs or in leaf litter.<br><br>Animals and plants are suited to the habitats they live in. Their features help them survive in those environments.<br><br>A food chain shows how energy is passed from one living thing to another.<br>Starts with a producer (usually a plant), followed by herbivores, then carnivores or omnivores. Example: Grass → Rabbit → Fox<br><br><u>Vocabulary</u><br>Living, dead/used to be alive, never alive, survive, habitat, microhabitat, depend, food sources, food chains. | <u>Knowledge</u><br>Animals can be grouped/classified in lots of different ways based upon their features for example physical features, habitat, diet.<br><br>Scientists split animals into two main groups: vertebrates and invertebrates.<br>Vertebrates are animals that have a backbone, also known as a spine.<br>Invertebrates are animals that do not have a spine.<br><br>Vertebrates can be sorted into five main groups with their own characteristics.<br>Mammals (warm-blooded), bird (warm-blooded), reptiles (cold-blooded), amphibians (cold-blooded), fish (cold-blooded).<br><br>Invertebrates can be sorted into many different groups. Here are four of them: Arthropods, Molluscs, Annelids, Echinoderms.<br><br>You can use classification keys to identify, group and name living things and Venn diagrams to sort into different categories.<br><br>Living things live in a habitat which provides an environment to which they are suited. These environments may change naturally, for example through flooding, fire, earthquakes etc.<br><br>Humans also cause the environment to change. This can be in a good way (positive human impact) such as setting up nature reserves or in a bad way (negative human impact) such as littering.<br><br><u>Vocabulary</u><br>classification, vertebrates, invertebrates, cold-blooded, warm-blooded, environment, Arthropods, Molluscs, Annelids, Echinoderms. | Humans develop inside the female and depend on caregivers for many years until they are old enough to look after themselves.<br><br>Birds are hatched from eggs and are looked after by their parents until they are able to live independently.<br><br>Amphibians, such as frogs, are laid in eggs, then once hatched go through many changes until they become an adult.<br><br>Some animals, such as butterflies, go through metamorphosis to become an adult.<br><br>Mammals use sexual reproduction to produce their offspring. The male sex cell, called the sperm, fertilises the female sex cell. The fertilised cell will form a baby with a beating heart. The baby will grow inside the female until the end of the gestation period when the baby is born.<br><br>Some living things, such as humans, contain either the male or female sex cell. Plants contain both the male and female sex cells.<br><br>Most plants contain both the male sex cell (pollen) and the female sex cell (ovule), but most plants cannot fertilise themselves.<br>Wind and insects help to transfer pollen to a different plant. The pollen from the stamen of one plant is transferred to the stigma of another. The pollen then travels down a tube, through the style and fuses with an ovule.<br><br><u>Vocabulary</u><br>Life cycle, reproduction, sexual reproduction, asexual reproduction, fertilise, gestation, metamorphosis, pollination | Living things can be grouped in various ways based on their characteristics.<br><br>Classification keys help identify and sort living things.<br><br>Carl Linnaeus created the classification system still used today.<br><br>Microorganisms are living things that are too small to be seen without a microscope.<br><br>Animals are either vertebrates or invertebrates.<br><br>Plants can be sorted based on whether they are flowering or non-flowering.<br><br>Classifying plants and animals based on specific characteristics is important for several scientific and practical reasons: to understand biodiversity, to identify organisms, to show evolutionary relationships, to predict characteristics, to support conservation efforts.<br><br><u>Vocabulary</u><br>Classification, organism, microorganism, vertebrate, invertebrate, species, adaptation, biodiversity, evolutionary relationship, conservation |

| | **Oakmere** | **Linmere** |
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| Forces and magnets | <u>NC Statements</u><br>-Compare how things move on different surfaces.<br>-Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance.<br>-Observe how magnets attract or repel each other and attract some materials and not others.<br>-Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials.<br>-Describe magnets as having 2 poles. | <u>NC Statements</u><br>-Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.<br>-Identify the effects of air resistance, water resistance and friction, that act between moving surfaces.<br>-Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect. |

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| | -Predict whether 2 magnets will attract or repel each other, depending on which poles are facing.<br><br><u>Knowledge</u><br>Forces are pushes or pulls. Forces can make an object start or stop moving, change speed, change direction or change shape.<br><br>Many forces are called contact forces. These are forces that occur between two or more objects that are touching. In a contact force, the objects involved must touch or make contact for the push or pull to happen.<br><br>Friction affects how things move across surfaces.<br>Different surfaces create different amounts of friction. The rougher (more bumpy) a surface, the higher the friction becomes.<br><br>Magnets have a North pole and a South pole.<br><br>Magnets produce an area of force around them called a magnetic field.<br><br>Magnetic fields are an invisible force. Magnets create a non-contact force which causes magnets to attract or repel.<br><br>When magnets repel, they push each other away. When magnets attract, they pull together.<br><br>Objects which are attracted to a magnet are magnetic. They usually contain the metals iron, nickel or cobalt.<br><br><u>Vocabulary</u><br>force, push, pull, contact force, non-contact force, friction, magnet, magnetic, magnetic force, poles, attract, repel | <u>Knowledge</u><br>Gravity is a non-contact force. It acts over a distance without needing to touch the object.<br><br>The force of gravity keeps objects on the ground and causes them to fall when they are unsupported.<br><br>Unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.<br><br>Isaac Newton, Ibn al-Haytham and Galileo Galilei developed theories of gravity.<br><br>Friction always acts in the opposite direction to the direction the object is moving in. Friction always slows down a moving object.<br><br>The effects of forces can be helpful and unhelpful.<br><br>On Earth, air creates an opposite force to gravity called air resistance. Air resistance slows down falling objects.<br><br>Water resistance happens when water (or any liquid) pushes against an object moving through it. Water resistance slows down moving objects.<br><br>The shape of an object affects air and water resistance. Streamlined shapes reduce the amount of resistance and so they can move more efficiently against the force. This helps them to travel faster through air or water.<br><br><u>Vocabulary</u><br>Force, gravity, Newton (N), friction, air resistance, water resistance, streamlined, lever, pully, gear |
| Rocks | **Oakmere** | |
| | <u>NC Statements</u><br>- Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.<br>- Describe in simple terms how fossils are formed when things that have lived are trapped within rock.<br>- Recognise that soils are made from rocks and organic matter.<br><br><u>Knowledge</u><br>There are 3 types of naturally occurring rock: igneous, sedimentary and metamorphic.<br><br>Fossils are the preserved remains or traces of plants and animals. They form when living things are trapped in sediment and gradually replaced by minerals.<br><br>Mary Anning is a key historical figure known for discovering important fossils.<br>Soil is the uppermost layer of the Earth. It is a mixture of different things.<br>Soil is made from: Minerals (from broken-down rocks), Organic matter (dead plants and animals), Air and Water.<br><br>Soil types vary in texture, permeability, and ability to support plant growth.<br><br><u>Vocabulary</u><br>Igneous Rocks, Sedimentary Rocks, Metamorphic Rocks, erosion, permeable, durability, geologist, palaeontology | |
| | **Oakmere** | **Blakemere** |
| Light | <u>NC Statements</u><br>- Recognise that they need light in order to see things and that dark is the absence of light.<br>- Notice that light is reflected from surfaces.<br>- Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.<br>- Recognise that shadows are formed when the light from a light source is blocked by an opaque object.<br>- Find patterns in the way that the size of shadows change. | <u>NC Statements</u><br>· Recognise that light appears to travel in straight lines.<br>· 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.<br>· 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. |

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<tr><td></td><td><u>Knowledge</u><br>Light is a form of energy that travels in straight lines. It allows us to see things and comes from a light source.<br><br>Light sources are objects that produce their own light, e.g. the Sun, lamps, candles, torches.<br><br>The Moon and mirrors are not light sources—they reflect light.<br><br>Reflection is when light bounces off reflective surfaces like mirrors. Shiny or light-coloured objects reflect more light than darker ones.<br><br>Shadows are formed when light is blocked by an opaque object.<br><br>The shape and size of a shadow depend on the position of the light source. Closer light = larger shadow, farther light = smaller shadow.<br><br>Never look directly at the Sun—it emits UV rays that can damage your eyes. Use sunglasses or stay in the shade to protect your eyes.<br><br><u>Vocabulary</u><br>Light, light source, reflective, opaque, transparent, translucent, shadow, UV rays, reflection.</td><td>· Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.<br><br><u>Knowledge</u><br>We need light to be able to see things.<br><br>Light waves travel out from sources of light in straight lines. These lines are often called rays or beams of light.<br><br>Objects are seen because they give out or reflect light into the eye.<br><br>We see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.<br><br>A shadow is always the same shape as the object that casts it. This is because when an opaque object is in the path of light travelling from a light source, it will block the light rays that hit it, while the rest of the light can continue travelling.<br><br>Shadows can also be elongated or shortened depending on the angle of the light source. A shadow is also larger when the object is closer to the light source. This is because it blocks more of the light.<br><br><u>Vocabulary</u><br>incident ray, reflected ray, law of reflection, refraction, visible spectrum, prism.</td></tr>
<tr><td>Sound</td><td colspan="2">Linmere<br><br><u>NC Statements</u><br>- identify how sounds are made, associating some of them with something vibrating<br>- recognise that vibrations from sounds travel through a medium to the ear<br>- find patterns between the pitch of a sound and features of the object that produced it<br>- find patterns between the volume of a sound and the strength of the vibrations that produced it<br>- recognise that sounds get fainter as the distance from the sound source increases.<br><br><u>Knowledge</u><br>Sounds are produced when objects vibrate.<br><br>The vibrations are called sound waves and they travel through a medium (solid, liquid, or gas) to reach our ears.<br><br>Pitch depends on how fast something vibrates (faster = higher pitch).<br><br>Volume depends on the strength (amplitude) of the vibrations (stronger = louder).<br><br>Sounds become fainter the further they travel from the source. This is because the sound looses energy over a distance.<br><br>Some materials absorb sound, reducing its volume.<br><br><u>Vocabulary</u><br>Ear, volume, vibration, pitch, absorb, amplitude, sound wave, eardrum, soundproof</td></tr>
<tr><td>Electricity</td><td>Blakemere<br><br><u>NC Statements</u><br>-identify common appliances that run on electricity.<br>-construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.<br>-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.<br>-recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</td><td>Blakemere<br><br><u>NC Statements</u><br>- associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.<br>- 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.<br>- use recognised symbols when representing a simple circuit in a diagram.<br><br><u>Knowledge</u></td></tr>
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| | -recognise some common conductors and insulators, and associate metals with being good conductors.<br><br>Knowledge<br>Many everyday appliances rely on electricity for them to work. Some appliances use mains electricity (are plugged into a socket) and others have a battery to make them work.<br>Examples of mains-powered appliances include toasters and televisions. Battery-powered appliances can include mobile phones and torches.<br><br>A circuit is a pathway that electricity can flow around. It is based around wires and a power supply. Examples of components (parts) you can add in to a circuit are bulbs, switches, buzzers and motors.<br><br>A series circuit is where the components are connected in a loop. Electricity flows through each component in a single pathway. A complete circuit is needed so that the electricity can flow and make the components work. If there is a break in the circuit then it is incomplete. This prevents the electricity from flowing and the components will not work.<br><br>Switches can be used to open or close a circuit. When off, a switch 'breaks' the circuit to stop the flow of electricity. When on, a switch 'completes' the circuit and allows the electricity to flow.<br><br>Materials can be tested in a circuit to see if they are electrical conductors or electrical insulators. A conductor of electricity is a material that will allow electricity to flow through it. Materials that are electrical insulators do not allow electricity to flow through them.<br><br>Vocabulary<br>Electricity, appliances, mains, wires, bulb, battery, cell, buzzer, switch, conductor, electrical insulator, component, circuit, complete circuit, incomplete circuit. | The more cells in a circuit, the brighter the bulb and the louder the buzzer.<br><br>Higher voltage means more energy flows, making components work harder.<br><br>Fewer cells or lower voltage = dimmer lights and quieter sounds.<br><br>Bulbs shine brighter when more electricity flows through them.<br><br>Buzzers buzz louder with more power.<br><br>Different components react differently depending on how the circuit is built.<br><br>We use special symbols to show parts of a circuit.<br>Drawing circuits with symbols helps everyone understand how they work.<br><br>Vocabulary<br>Component, motor, current, voltage |
| Earth and space | **Linmere**<br><br>NC Statements<br>- describe the movement of the Earth, and other planets, relative to the Sun in the solar system<br>- describe the movement of the Moon relative to the Earth<br>- describe the Sun, Earth and Moon as approximately spherical bodies<br>- use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.<br><br>Knowledge<br>The Sun is a star at the centre of our solar system.<br><br>There are eight planets in our solar system: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune.<br><br>Earth rotates on its axis once every 24 hours – this causes day and night.<br><br>Earth orbits the Sun once every 365.25 days – this causes seasons.<br><br>The Moon orbits Earth every 28 days and reflects sunlight.<br><br>The Moon appears to change shape – these are called the phases of the Moon.<br><br>The sun, Earth and Moon are roughly spherical in shape.<br><br>Gravity keeps planets in orbit around the Sun and the Moon in orbit around Earth.<br><br>Vocabulary<br>Evolution, natural selection, adaptive traits, inherited traits, offspring, inheritance, variations, adaptation. | |
| | **Blakemere** | |

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<tr><td>Evolution and inheritance</td><td colspan="2">NC Statements<br>- recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago<br>- recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents<br>- identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution<br><br>Knowledge<br>Evolution explains how living things have changed over time. It happens over millions of years.<br>Fossils give clues about organisms that lived long ago. They show how species have changed over time.<br>Variation can be inherited or caused by the environment. Offspring inherit traits from their parents (e.g., eye colour, hair type). Some traits are inherited, while others are influenced by the environment (e.g., accent, scars).<br>No two individuals are exactly the same (even twins have differences).<br>Animals and plants adapt to their environments to survive. Examples: Polar bears have thick fur and fat to keep warm. Cacti store water and have spines to protect themselves.<br>Charles Darwin is known for the theory of evolution by natural selection.<br><br>Vocabulary<br>Evolution, offspring, inheritance, adaption, adaptive traits, inherited traits, variations, natural selection</td></tr>
<tr><td rowspan="2">Seasonal changes</td><td>Hatchmere</td><td>Sandymere</td></tr>
<tr><td>I know the seasons of Autumn, Winter, Summer and Spring and ways to identify them.<br><br>I know there are seasonal colours and can identify some.<br><br>I know that lots of new life begins in the Spring time.<br><br>I know appropriate clothing for the seasons and can choose which they are.<br><br>Key vocabulary:<br>seasons, winter, summer, spring, autumn, weather</td><td>NC Statements<br>- observe changes across the four seasons<br>- observe and describe weather associated with the seasons and how day length varies.<br><br>Knowledge<br>There are four seasons in the year: Spring, Summer, Autumn, and Winter.<br><br>The weather changes in each season.<br>Spring: warmer, more rain, flowers start to grow.<br>Summer: hot and sunny, longer days.<br>Autumn: cooler, leaves change colour and fall of the trees.<br>Winter: cold, sometimes snow or frost, shorter days.<br><br>Day length changes across the seasons. Days are longer in summer and shorter in winter.<br><br>Clothing and activities change with the seasons. In summer, we wear light clothes and play outside more.<br>In winter, we wear warm clothes and might stay indoors more.<br><br>Plants and animals behave differently in each season. Some animals hibernate in winter. Many plants grow in spring and summer.<br><br>We can observe seasonal changes by looking at: The weather (sun, rain, snow, wind). Trees and plants. What people wear and do.<br><br>Vocabulary<br>Seasons, autumn, winter, spring, summer, weather, daylight</td></tr>
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