|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
| **Nursery** | **Humans** | **Materials** | **Electricity** | **Plants** | **Animals, excluding Humans** | **Forces** |
| **Reception** | **Materials Including Changing Materials** | | **Living Things and Their Habitats (Plants)** | **Humans** | **Light** | **Animals Excluding Humans** |
| **Seasonal Change** | | | | | |
| **Year 1** | **Animals Including Humans** | | **Plants** | | **Everyday Material Properties** | |
| **Seasonal Change** | | | | | |
| **Year 2** | **Uses of Every day Materials** | **Plants** | **Living Things and Their Habitats** | | **Animals Including Humans** | |
| **Year 3** | **Plants** | **Light** | **Forces and Magnets** | | **Rocks** | **Animals Including Humans** |
| **Year 4** | **Electricity** | **Sound** | **States of Matter** | | **Animals, Including Humans** | **Living Things and Their Habitats\*** |
| **Year 5** | **Earth and Space** | **Forces\*** | **Properties and Changes of Materials** | | **Living Things and Their Habitats** | **Animals including Humans (taught alongside PSHE) \*** |
| **Year 6** | **Electricity** | **Light** | **Living Things and Their Habitats** | | **Animals Including Humans\*** | **Evolution and Inheritance** |

\* Please check prior learning due to School closures for COVID-19. (See appendix A for further details)

|  |  |  |  |
| --- | --- | --- | --- |
| **Nur** | **National Curriculum** | **Progression steps** | **Vocabulary** |
| **Autumn Term** | | | |
| Unit: Humans | • Use all their senses in hands-on exploration of natural materials.  • Begin to make sense of their own life-story and family’s history.  • Understand the key features of the life cycle of a plant and an animal. | **Opportunities to learn about the life cycles of humans**  • Looking at photographs of the children as babies  • Sharing books about how to look after a baby  • Talking to an expectant mother, parent with a baby and elderly person  • Talking to adults about photographs of the adults at different ages  • Identifying pictures of babies, toddlers, children, adults and old people in magazines or other media  • Drawing humans at different ages  Opportunities to learn about how to take care of themselves  • Talking about how they look after their own health and hygiene  • Noticing when they feel hot and cold and how to respond to this  • Choosing appropriate materials to protect themselves from the Sun  **Opportunities to learn about their senses**  • Exploring the natural environment with their senses  • Exploring objects using their senses e.g. smelling pots, feely bags, listening pots etc.  • Sorting collections of natural objects using their senses e.g. bark, pebbles, feathers, seeds, cones, leaves, sticks  • Looking closely at natural objects using a magnifying glass or app on a tablet  • Going on a sound walk  • Playing guessing games where children pick an object and either describe it or are asked questions in order to identify it  • Playing listening games  • Sharing books | grow, change, baby, toddler, child, adult, old person, smell, taste, touch, feel, hear, see, blind, deaf  Expose children to supplementary vocabulary such as:  life cycle, senses, elderly, die (if appropriate) |
| Unit: Materials | • Use all their senses in hands-on exploration of natural materials.  • Explore collections of materials with similar and/or different properties.  • Talk about the differences between materials and changes they notice. | **Opportunities to explore a range of materials in a sensory way especially through touch, including more unusual materials**  • Exploring oobleck (cornflour and water), gellibaff, shaving foam, foam burst shower gel etc.  Opportunities to shape and join materials  • Building junk models using a range of materials  • Shaping and joining materials using equipment e.g. scissors, hole punch, including when using wood e.g. a hammer and nail  **Opportunities to change materials**  • Making smoothies  • Mixing ingredients to make playdough, cakes, biscuits, bread, jelly etc.  • Melting chocolate for decorating bakes/biscuits or to combine with other ingredients e.g. refrigerator cake, chocolate crispy cakes  • Comparing cooked and uncooked pasta, noodles, rice or potatoes  • Cooking popcorn in a microwave  • Cooking cakes, biscuits, bread etc.  • Making ice lollies and ice-cream  • Using medical ice packs including self-activated cool pads  • Removing toys from ice  • Adding baking soda and fizzy bath bombs to water  • Adding coloured sweets to water  • Adding currants to fizzy water/lemonade  • Adding bicarbonate of soda to vinegar to make a bubbling potion | mix, stir, cook, hot, oven, microwave, change, burn, melt, hard, runny, set, freeze, freezer, cold, blended, hard, soft, bendy, stiff, wobbly, wood, plastic, paper, card, fabric  Expose children to supplementary vocabulary such as:  solid, liquid, rigid, stronger, weaker |
| **Spring Term** | | | |
| Unit: Electricity | • Explore how things work. | **Opportunities to identify electrical devices**  • Spotting devices that are plugged into power sockets in the classroom  • Spotting devices that use batteries in the classroom  • Sorting objects/photographs of objects according to whether they use electricity or not  • Sorting objects/photographs of objects according to whether they use batteries and/or mains electricity.  • Looking at shopping catalogues that include electrical devices  **Opportunities to use battery-powered devices**  • Using Code-a-Pillars, Bee-Bots, shopping tills, torches, remote control cars, talk cards/recording devices, hand-held fans  **Opportunities to talk about how electrical devices work**  • Describing what the devices do e.g. make a sound, make light, move  • Suggesting that batteries may need charging or replacing when a device does not work | battery, plug, socket, electricity, wire, sound, light, move  Expose children to supplementary vocabulary such as:  • mains electricity, device, appliance, electrical |
| Unit: Plants | • Use all their senses in hands-on exploration of natural materials.  • Explore collections of materials with similar and/or different properties.  • Plant seeds and care for growing plants.  • Understand the key features of the life cycle of a plant and an animal.  • Begin to understand the need to respect and care for the natural environment and all living things. | • Observing and photographing/drawing how plants grow and die  • Observing and photographing/drawing what happens when fruit, vegetables and flowers are left to decay  • Gathering seeds and digging up bulbs of the plants they grow  • Designing seed packets  • Using what they grow to make food to eat  • Sharing books about plants and growing plants | plant, leaf, stem, trunk, branch, root, bark, flower, petal, seed, berry, fruit, vegetable, bulb, plant, hole, dig, water, weed, grow, shoot, die, dead, soil  Expose children to supplementary vocabulary such as:  seedling, healthy, unhealthy, strong, sturdy, wilting, decay, mould, life cycle |
| **Summer Term** | | | |
| Unit: Animals Excluding Humans | • Understand the key features of the life cycle of a plant and an animal. | **Opportunities to learn about the life cycles of animals**  • Caring for eggs and the young animals that emerge, such as chicks, caterpillars, frogs  • Sharing books with information about animal life cycles (fiction and non-fiction)  • Looking at and matching pictures of animals and their young  • Watching videos of animals and their young and how they change over time  • Playing games involving matching or describing animals and their young  • Playing with small world animals, matching adults to their young  • Visiting a farm, zoo or pet shop, particularly to see young animals  • Talking about the sounds adult and young animals make and comparing them  • Drawing adult animals and their young | egg, chick, bird, caterpillar, cocoon, chrysalis, butterfly, frog spawn, tadpole, froglet, frog, grow, change, die, names of animals and their young, fur, feathers, scales, tail, wings, beak, claws, paws, hooves, swim, walk, run, jump, jump, fly, patterns, spots, stripes  Expose children to supplementary vocabulary such as:  life cycle, mane, webbed feet |
| Unit: Forces | • Explore how things work.  • Explore and talk about different forces they can feel.  • Talk about the differences between materials and changes they notice. | **Opportunities to feel forces**  • Pushing floating objects under water e.g. balloons, table tennis balls etc.  • Exploring magnets of different shapes and sizes  • Exploring springs of different sizes, both compression and extension springs  • Using bikes and scooters on different surfaces and ramps  **Opportunities to explore how things work**  • Testing a range of objects to find out if they float or sink  • Playing games that contain springs e.g. bagatelle  • Playing with wind-up toys  • Racing wind-up toys  • Playing with gears and pulleys e.g. sets of gears, large playground pulleys etc.  • Playing with magnetic toys e.g. train carriages joined by magnets, magnetic construction kits etc.  **Opportunities to explore how objects/materials are affected by forces**  • Pushing, pulling, twisting and bending malleable (e.g. modelling clay, playdough, springs, pipe cleaners, elastics, sponges etc.) and non-malleable objects/materials  • Cutting and joining objects/materials e.g. wood, building kits with nuts and bolts etc. | object, float, sink, water, up, down, top, bottom, push, pull, magnet, spring, squash, bend, twist, stretch, turn, spin, smooth, rough, fast, slow  Expose children to supplementary vocabulary such as:  rising, falling, attract, repel, faster, slower, pulley, gear, elastic |

|  |  |
| --- | --- |
|  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Reception** | **National Curriculum** | **Progression steps** | **Vocabulary** |
| **Ongoing Throughout the Year** | | | |
| Unit: Seasonal Changes | •Explore the natural world around them.  • Describe what they see, hear and feel whilst outside.  • Understand the effect of changing seasons on the natural world around them. | **Opportunities to play and explore outside in all seasons and in different weather**  • Playing in the rain and snow  • Drawing around puddles  • Catching rain and hail in buckets  • Catching snowflakes on frozen black paper and looking at them with magnifying glasses or an app on a tablet  • Making icicles  • Using scarves or pinwheels to explore the strength and direction of the wind  • Looking at photographs of different seasons and types of weather  • Sharing books about different seasons and types of weather  **Opportunities to observe living things throughout the year**  • Sharing books about the seasons  • Going on seasonal walks to observe key features of the seasons  • Making artwork with seasonal found objects  • Visiting a canal or pond to look for birds and their young in spring  • Visiting a farm to see the young animals in the spring  • Finding minibeasts in the school grounds at different times in the year  • Taking photographs of the minibeasts they find in the school grounds at different times in the year  • Looking for birds and other animals throughout the year using binoculars  • Sharing books and videos about animals that migrate or hibernate over winter, gather food in autumn, build nests and lay eggs in spring etc.  • Taking photographs of the plants they find in the school grounds at different times in the year  • Observing closely and drawing the plants in the school grounds at different times in the year  • Matching animals and plants they find to pictures that identify them | spring, summer, autumn, winter, seasons, sunny, cloudy, hot, warm, cold, shower, raining, storm, thunder, lightning, hail, sleet, snow, icy, frost, puddles, windy, rainbow, animals, young, plants, flowers  Expose children to supplementary vocabulary such as:  hibernate, migrate, snowflake |
| **Autumn Term** | | | |
| Unit: Materials including Changing Materials | • Explore the natural world around them.  • Describe what they see, hear and feel whilst outside. | **Opportunities to explore a range of materials in a sensory way, including natural materials**  • Looking for dew, ice, icicles and frost in the playground  • Using their senses to explore natural materials in the environment, such as stones, twigs, leaves, feathers, seeds, flowers etc.  • Gathering natural materials to make collections  **Opportunities to make objects from different materials, including natural materials**  • Making pictures using natural materials they have gathered from the environment  • Making dens, nests, bug hotels etc. using natural materials  • Making ice pictures by putting water in a shallow tray and adding natural objects gathered from the environment and then leaving them outside to freeze or putting them in the freezer  • Making junk models with a range of materials, including natural materials they have gathered from the environment  **Opportunities to compare how materials change**  • Making popcorn in a microwave and on a fire  • Making pizza dough with different flours  • Baking bread in different tins or for different times to compare the outcome  • Baking cupcakes and removing one after every five minutes  • Choosing where to put ice cubes in the playground and observing how quickly they melt  • Observing how a large block of ice changes over time, using string to measure around it  • Putting wax crayons in different areas of the playground and observing how they change  • Making a snowman and observing how it changes over time  • Making snowballs and putting them in different parts of the playground and observing how they change over time | ice, water, frozen, icicle, snow, melt, wet, cold, slippery, smooth, big, bigger, biggest, smaller, smaller, smallest, hard, soft, bendy, rigid, wood, plastic, paper, card, metal, strong, weak, hot, apply heat, waterproof, soggy, not waterproof, best, change, change back  Expose children to supplementary vocabulary such as:  solid, liquid, gas, most suited |
| **Spring Term** | | | |
| Unit: Living Things and Their Habitats (plants) | • Draw information from a simple map.  • Explore the natural world around them.  • Describe what they see, hear and feel whilst outside.  • Recognise some environments that are different to the one in which they live. | **Opportunities to explore the plants in the surrounding natural environment**  • Taking photographs of the plants they find in the school grounds  • Observing closely and drawing the plants in the school grounds  • Finding plants in the school grounds to match with photographs of them  • Looking at aerial views to count the number of trees in the school grounds  • Using a map of the school grounds, with pictures of where specific plants can be found, to find those plants  • Creating a map to show how to find their favourite plants in the school grounds  **Opportunities to explore the animals in the surrounding natural environment**  • Finding minibeasts in the school grounds  • Taking photographs of the minibeasts they find in the school grounds  • Matching the minibeasts they find to pictures that identify them  • Observing the minibeasts closely, using a magnifying glass or app on a tablet  • Drawing pictures of the minibeasts  • Creating a map to show where they found each type of minibeast  • Sharing books about minibeasts  • Playing with small world minibeasts  • Building minibeast homes  **Opportunities to explore plants and animals in a contrasting natural environment**  • Visiting a contrasting natural environment e.g. forest, beach, etc.  • Finding and taking photographs of plants and animals in the contrasting natural environment  • Sharing non-fiction and fiction books about the contrasting natural environment visited | • plant, tree, bush, flower, vegetable, herb, weed, animal, names of plants and animals they see, name of a contrasting environment e.g. beach, forest  Expose children to supplementary vocabulary such as:  environment |
| Unit: Humans | • Talk about members of their immediate family and community.  • Name and describe people who are familiar to them. | **Opportunities to describe people who are familiar to them**  • Talking about themselves, friends, family and community using photographs  • Using mirrors to look at their faces  • Creating pictures or collages of themselves, friends, family and community  • Making hand and footprints using paint  • Making fingerprints using ink pads  • Using a ‘magic’ mirror which shows everything about them and getting children to describe themselves and how they are special  • Sharing books about different types of families  **Opportunities to learn about how to take care of themselves**  • Demonstrating and talking about how they look after themselves  • Talking about other people that look after them  • Talking to a dentist, nurse, meal supervisor/school cook, road crossing supervisor etc.  • Sharing videos of people who care for us and how we look after ourselves | hair (black, brown, dark, light, blonde, ginger, grey, white, long, short, straight, curly), eyes (blue, brown, green, grey), skin (black, brown, white), big/tall, small/short, bigger/smaller, baby, toddler, child, adult, old person, old, young, brother, sister, mother, father, aunt, uncle, grandmother, grandfather, cousin, friend, family, boy, girl, man, woman  Expose children to supplementary vocabulary such as:  bald, elderly, wrinkles, male, female, freckles |
| **Summer Term** | | | |
| Unit: Light | • Describe what they see, hear and feel whilst outside. | **Opportunities to explore shadows**  • Looking for shadows created by the Sun on cloudy and non-cloudy days  • Drawing around shadows and comparing their shape and size  • Making shadows using their bodies, both outside using the Sun and inside using torches  • Making shadows using transparent and opaque objects/materials  • Putting hands in a beam of light and making shadow shapes  • Making shadows using shadow puppets or other objects  • Observing a toy outside and noticing how the shadow changes during the day  • Observing what areas are sunny and shady at different times in the day  • Sharing books about shadows  **Opportunities to explore rainbows**  • Making rainbows from sunlight e.g. bubbles, water sprinkler, holographic paper, CDs etc.  • Sharing books about rainbows | Sun, sunny, light, shadow, shady, clouds, torch, see-through, non-see-through, source, light source  Expose children to supplementary vocabulary such as:  casting a shadow, pale, dark, transparent, opaque |
| Unit: Animals excluding Humans | **• Recognise some environments that are different to the one in which they live. Links with other areas of learning** | **Opportunities to learn about animals from a different habitat**  • Sharing books about animals in the local area and animals in other countries e.g. jungle, polar regions, desert, ocean  • Looking at pictures of animals in different habitats  • Watching videos of animals in different habitats  • Playing games involving matching animals to their habitats  • Playing with small world animals in different habitats  • Visiting the zoo, focusing on animals that live in different habitats  • Caring for pets from a different habitat e.g. tropical fish  • Creating pictures of animals in their habitats  • Pretending to be animals  • Naming and describing animals they see in books, pictures, videos or while on a trip  • Describing different habitats | names of animals, live, on land, in water, jungle, desert, North Pole, South Pole, sea, hot, cold, wet, dry, snow, ice  Expose children to supplementary vocabulary such as:  environment, polar regions, ocean, camouflage |

|  |  |  |  |
| --- | --- | --- | --- |
| **Year 1** | **National Curriculum** | **Progression steps** | **Vocabulary** |
| **Ongoing Throughout the Year** | | | |
| Unit: Seasonal Change | • Observe changes across the four seasons.  • Observe and describe weather associated with the seasons and how day length varies. | 1. Collect information about the weather regularly throughout the year. 2. Present this information in tables and charts to compare the weather across the seasons. 3. Collect information, regularly throughout the year, of features that change with the seasons e.g. plants, animals, humans. 4. Present this information in different ways to compare the seasons. 5. Gather data about day length regularly throughout the year and present this to compare the seasons. | Weather (sunny, rainy, windy, snowy etc.)  Seasons (winter, summer, spring, autumn)  Sun, sunrise, sunset, day length |
| **Autumn Term** | | | |
| Unit: Animals Including Humans | •Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.  • Identify and name a variety of common animals that are carnivores, herbivores and omnivores.  • Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).  • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. | 1. Make first-hand, close observations of animals from each of the groups. 2. Compare two animals from the same or different groups. 3. Classify animals using a range of features. 4. Identify animals by matching them to named images. 5. Classify animals according to what they eat. 6. Make first-hand close observations of parts of the body e.g. hands, eyes. 7. Compare two people. 8. Take measurements of parts of their body. 9. Compare parts of their own body. 10. Look for patterns between people e.g. Do people with big hands have big feet? 11. Classify people according to their features. 12. 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? | Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves  Names of animals experienced first-hand from each vertebrate group  Parts of the body including those linked to PSHE teaching (see joint document produced by the ASE and PSHE Association)  Senses – touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear and tongue  N.B.  The children need to be able to name and identify a range of animals in each group e.g. name specific birds and fish. They do not need to use the terms mammal, reptiles etc. or know the key characteristics of each, although they will probably be able to identify birds and fish, based on their characteristics. |
| **Spring Term** | | | |
| Unit: Plants | **(Unit to continue into Summer Term through nature journals)**  • Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.  • Identify and describe the basic structure of a variety of common flowering plants, including trees. | 1. Make close observations of leaves, seeds, flowers etc. 2. Compare two leaves, seeds, flowers etc. 3. Classify leaves, seeds, flowers etc. using a range of characteristics. 4. Identify plants by matching them to named images. 5. Make observations of how plants change over a period of time. 6. When further afield, spot plants that are the same as those in the local area studied regularly, describing the key features that helped them. | Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud  Names of trees in the local area  Names of garden and wild flowering plants in the local area |
| **Summer Term** | | | |
| Unit: Everyday Materials | • Distinguish between an object and the material from which it is made.  • Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.  • Describe the simple physical properties of a variety of everyday materials.  • Compare and group together a variety of everyday materials on the basis of their simple physical properties. | 1. Classify objects made of one material in different ways e.g. a group of objects made of metal. 2. Classify in different ways one type of object made from a range of materials e.g. a collection of spoons made of different materials. 3. Classify materials based on their properties. 4. Test the properties of objects e.g. absorbency of cloths, strength of party hats made of different papers, stiffness of paper plates, waterproofness of shelters. | Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through |

|  |  |  |  |
| --- | --- | --- | --- |
| **Year 2** | **National Curriculum** | **Progression steps** | **Vocabulary** |
| **Autumn Term** | | | |
| Unit: Uses of Everyday Materials | • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.  • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. | 1. Classify materials. 2. Make suggestions about alternative materials for a purpose that are both suitable and unsuitable 3. Test 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 | Names of materials – wood, metal, plastic, glass, brick, rock, paper, cardboard  Properties of materials – as for Year 1 plus opaque, transparent and translucent, reflective, non-reflective, flexible, rigid  Shape, push/pushing, pull/puling, twist/twisting, squash/squashing, bend/bending, stretch/stretching |
| Unit: 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. | 1. Make close observations of seeds and bulbs. 2. Classify seeds and bulbs. 3. Research and plan when and how to plant a range of seeds and bulbs. 4. Look after the plants as they grow – weeding, thinning, watering etc. 5. Make close observations and measurements of their plants growing from seeds and bulbs. 6. Make comparisons between plants as they grow. | **As for Year 1:** Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud  Names of trees in the local area  Names of garden and wild flowering plants in the local area  **New Vocabulary for this unit**: light, shade, sun, warm, cool, water, grow, healthy |
| **Spring Term** | | | |
| Unit: Living Things and Their Habitats | • Explore and compare the differences between things that are living, dead, and things that have never been alive  • Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other  • Identify and name a variety of plants and animals in their habitats, including 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. | 1. Explore the outside environment regularly to find objects that are living, dead and have never lived. 2. Classify objects found in the local environment. 3. Observe animals and plants carefully, drawing and labelling diagrams. 4. Create simple food chains for a familiar local habitat from first-hand observation and research. 5. Create simple food chains from information given e.g. in picture books (Gruffalo etc.). | Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed  Names of local habitats e.g. pond, woodland etc.  Names of micro-habitats e.g. under logs, in bushes etc. |
| **Summer Term** | | | |
| Unit: Animals including Humans | • Notice that animals, including humans, have offspring which grow into adults.  • Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).  • Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. | 1. Ask people questions and use secondary sources to find out about the life cycles of some animals. 2. Observe animals growing over a period of time e.g. chicks, caterpillars, a baby. 3. Ask questions of a parent about how they look after their baby. 4. Ask pet owners questions about how they look after their pet. 5. Explore the effect of exercise on their bodies. 6. Classify food in a range of ways, including using the Eatwell Guide. 7. Investigate washing hands, using glitter gel. | Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly), exercise, heartbeat, breathing, hygiene, germs, disease, food types (examples – meat, fish, vegetables, bread, rice, pasta) |

|  |  |  |  |
| --- | --- | --- | --- |
| **Year 3** | **National Curriculum** | **Progression steps** | **Vocabulary** |
| **Autumn Term** | | | |
| Unit: Plants | • Identify and describe the functions of different parts of flowering plants: roots; stem/trunk; leaves; and flowers.  • Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant.  • Investigate the way in which water is transported within plants.  • Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. | 1. Observe what happens to plants over time when the leaves or roots are removed. 2. Observe the effect of putting cut white carnations or celery in coloured water. 3. 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. 4. Spot flowers, seeds, berries and fruits outside throughout the year. 5. Observe flowers carefully to identify the pollen. 6. Observe flowers being visited by pollinators e.g. bees and butterflies in the summer. 7. Observe seeds being blown from the trees e.g. sycamore seeds. 8. Research different types of seed dispersal. 9. Classify seeds in a range of ways, including by how they are dispersed. 10. Create a new species of flowering plant. | Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal) |
| Unit: Light | • Recognise that they need light in order to see things, and that dark is the absence of light.  • Notice that light is reflected from surfaces.  • Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. • Recognise that shadows are formed when the light from a light source is blocked by an opaque object. • Find patterns in the way that the size of shadows change. | 1. Explore how different objects are more or less visible in different levels of lighting. 2. Explore how objects with different surfaces (e.g. shiny vs matt) are more or less visible. 3. Explore how shadows vary as the distance between a light source and an object or surface is changed. 4. Explore shadows which are connected to and disconnected from the object e.g. shadows of clouds and children in the playground. 5. Choose suitable materials to make shadow puppets. 6. Create artwork using shadows. | Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous |
| **Spring Term** | | | |
| Unit: Forces and Magnets | • Compare how things move on different surfaces.  • Notice that some forces need contact between two objects, but magnetic forces can act at a distance.  • Observe how magnets attract or repel each other and attract some materials and not others.  • Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet and identify some magnetic materials.  • Describe magnets as having two poles.  • Predict whether two magnets will attract or repel each other, depending on which poles are facing. | 1. Carry out investigations to explore how objects move on different surfaces e.g. spinning tops/coins, rolling balls/cars, clockwork toys, soles of shoes etc. 2. Explore what materials are attracted to a magnet. 3. Classify materials according to whether they are magnetic. 4. Explore the way that magnets behave in relation to each other. 5. Use a marked magnet to find the unmarked poles on other types of magnets. 6. Explore how magnets work at a distance e.g. through the table, in water, jumping paper clips up off the table. 7. Devise an investigation to test the strength of magnets. | Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole |
| **Summer Term** | | | |
| Unit: Rocks | • Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.  • Describe in simple terms how fossils are formed when things that have lived are trapped within rock.  • Recognise that soils are made from rocks and organic matter. | 1. Observe rocks closely. 2. Classify rocks in a range of ways, based on their appearance. 3. Devise a test to investigate the hardness of a range of rocks. 4. Devise a test to investigate how much water different rocks absorb. 5. Observe how rocks change over time e.g. gravestones or old building. 6. Research using secondary sources how fossils are formed. 7. Observe soils closely. 8. Classify soils in a range of ways based on their appearance. 9. Devise a test to investigate the water retention of soils. 10. Observe how soil can be separated through sedimentation. 11. Research the work of Mary Anning. | Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil |
| Unit: Animals Including Humans | • 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.  • Identify that humans and some other animals have skeletons and muscles for support, protection and movement. | N.B – There may be more than one activity covered per session   1. Classify food in a range of ways. 2. Use food labels to explore the nutritional content of a range of food items. 3. Use secondary sources to find out the types of food that contain the different nutrients. 4. 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? 5. Plan a daily diet to contain a good balance of nutrients. 6. Explore the nutrients contained in fast food. 7. Use secondary sources to research the parts and functions of the skeleton. 8. Investigate patterns asking questions such as: 9. Can people with longer legs run faster? 10. Can people with bigger hands catch a ball better? 11. Compare, contrast and classify skeletons of different animals. | Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, move, skull, ribs, spine, muscles, joints |

|  |  |  |  |
| --- | --- | --- | --- |
| **Year 4** | **National Curriculum** | **Progression steps** | **Vocabulary** |
| **Autumn Term** | | | |
| Unit: Electricity | • Identify common appliances that run on electricity.  • Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.  • Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery.  • Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.  • Recognise some common conductors and insulators, and associate metals with being good conductors. | 1. Construct a range of circuits. 2. Explore which materials can be used instead of wires to make a circuit. 3. Classify the materials that were suitable/not suitable for wires. • Explore how to connect a range of different switches and investigate how they function in different ways. 4. Choose switches to add to circuits to solve particular problems, such as a pressure switch for a burglar alarm. 5. Apply their knowledge of conductors and insulators to design and make different types of switch. 6. Make circuits that can be controlled as part of a DT project.   N.B. Children should be given one component at a time to add to circuits. | Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol N.B. Children in Year 4 do not need to use standard symbols for electrical components, as this is taught in Year 6. |
| Unit: Sound | • Identify how sounds are made, associating some of them with something vibrating.  • Recognise that vibrations from sounds travel through a medium to the ear.  • Find patterns between the pitch of a sound and features of the object that produced it.  • Find patterns between the volume of a sound and the strength of the vibrations that produced it.  • Recognise that sounds get fainter as the distance from the sound source increases. | 1. Classify sound sources. 2. Explore making sounds with a range of objects, such as musical instruments and other household objects. 3. Explore how string telephones or ear gongs work. 4. 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. 5. Measure sounds over different distances. 6. Measure sounds through different insulation materials. | Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation |
| **Spring Term** | | | |
| Unit: States of Matter | • Compare and group materials together, according to whether they are solids, liquids or gases.  • Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C).  • Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. | N.B – There may be more than one activity covered per session   1. Observe closely and classify a range of solids. Observe closely and classify a range of liquids 2. 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 the wind. 3. Classify materials according to whether they are solids, liquids and gases 4. Observe a range of materials melting e.g. ice, chocolate, butter 5. Investigate how to melt ice more quickly. 6. Observe the changes when making rocky road cakes or ice-cream. 7. Investigate the melting point of different materials e.g. ice, margarine, butter and chocolate 8. Explore freezing different liquids e.g. tomato ketchup, oil, shampoo. 9. Use a thermometer to measure temperatures e.g. icy water (melting), tap water, hot water, boiling water (demonstration). 10. Observe water evaporating and condensing e.g. on cups of icy water and hot water. 11. Set up investigations to explore changing the rate of evaporation e.g. washing, puddles, handprints on paper towels, liquids in containers. 12. Use secondary sources to find out about the water cycle. | Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle |
| **Summer Term** | | | |
| Unit: Animals, Incuding Humans | • Describe the simple functions of the basic parts of the digestive system in humans.  • Identify the different types of teeth in humans and their simple functions.  • Construct and interpret a variety of food chains, identifying producers, predators and prey. | 1. Research the function of the parts of the digestive system. 2. Create a model of the digestive system using household objects. 3. Explore eating different types of food to identify which teeth are being used for cutting, tearing and grinding (chewing). 4. Classify animals as herbivores, carnivores or omnivores according to the type of teeth they have in their skulls. 5. Use food chains to identify producers, predators and prey within a habitat. 6. Use secondary sources to identify animals in a habitat and find out what they eat. | Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars, herbivore, carnivore, omnivore, producer, predator, prey, food chain |
| Unit: Living Things and Their Habitats | • Recognise that living things can be grouped in a variety of ways.  • Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.  • Recognise that environments can change and that this can sometimes pose dangers to living things. | 1. Observe plants and animals in different habitats throughout the year. 2. Compare and contrast the living things observed. 3. Use classification keys to name unknown living things. 4. Classify living things found in different habitats based on their features. 5. Create a simple identification key based on observable features. 6. Use fieldwork to explore human impact on the local environment e.g. litter, tree planting. 7. Use secondary sources to find out about how environments may naturally change. 8. Use secondary sources to find out about human impact, both positive and negative, on environments. | Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate |

|  |  |  |  |
| --- | --- | --- | --- |
| **Year 5** | **National Curriculum** | **Progression steps** | **Vocabulary** |
| **Autumn Term** | | | |
| Unit: Earth & Space | • Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.  • Describe the movement of the Moon relative to the Earth.  • Describe the Sun, Earth and Moon as approximately spherical bodies.  • Use the idea of the Earth’s rotation to explain day and night and the apparent movement of the Sun across the sky. | 1. Use secondary sources to help create a model e.g. role play or using balls to show the movement of the Earth around the Sun and the Moon around the Earth. 2. Use secondary sources to help make a model to show why day and night occur. 3. Make first-hand observations of how shadows caused by the Sun change through the day. 4. Make a sundial. 5. Research time zones. 6. Consider the views of scientists in the past and evidence used to deduce shapes and movements of the Earth, Moon and planets before space travel. | Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, solar system, rotates, star, orbit, planets |
| Unit: Forces | • Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.  • Identify the effects of air resistance, water resistance and friction that act between moving surfaces.  • Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. | 1. Investigate the effect of friction in a range of contexts e.g. trainers, bathmats, mats for a helter-skelter. 2. Investigate the effects of water resistance in a range of contexts e.g. dropping shapes through water and pulling shapes, such as boats, along the surface of water. 3. Investigate the effects of air resistance in a range of contexts e.g. parachutes, spinners, sails on boats. 4. Explore how levers, pulleys and gears work. 5. Make a product that involves a lever, pulley or gear. 6. Create a timer that uses gravity to move a ball. 7. Research how the work of scientists such as Galileo Galilei and Isaac Newton helped to develop the theory of gravitation. | Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears |
| **Spring Term** | | | |
| Unit: Properties and Changes of Materials | • Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.  • Know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution.  • Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.  • Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.  • Demonstrate that dissolving, mixing and changes of state are reversible changes.  • Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda. | SEE NUMBER 6 SUMMER TERM A – PLANT BULBS NOW   1. Investigate the properties of different materials in order to recommend materials for particular functions depending on these properties e.g. test waterproofness and thermal insulation to identify a suitable fabric for a coat. 2. Explore adding a range of solids to water and other liquids e.g. cooking oil, as appropriate. 3. Investigate rates of dissolving by carrying out comparative and fair test. 4. Separate mixtures by sieving, filtering and evaporation, choosing the most suitable method and equipment for each mixture. 5. Explore a range of non-reversible changes e.g. rusting, adding fizzy tablets to water, burning. 6. Carry out comparative and fair tests involving non-reversible changes e.g. What affects the rate of rusting? What affects the amount of gas produced? 7. Research new materials produced by chemists e.g. Spencer Silver (glue of sticky notes) and Ruth Benerito (wrinkle free cotton). | Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material |
| **Summer Term** | | | |
| Unit: Living Things and Their Habitats | • Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.  • Describe the life process of reproduction in some plants and animals. | 1. Use secondary sources and, where possible, first-hand observations to find out about the life cycle of a range of animals. 2. Compare the gestation times for mammals and look for patterns e.g. in relation to size of animal or length of dependency after birth. 3. Look for patterns between the size of an animal and its expected life span. 4. Grow and observe plants that reproduce asexually e.g. strawberries, spider plants, potatoes. 5. Take cuttings from a range of plants e.g. African violet, mint. 6. Plant bulbs and then harvest to see how they multiply. 7. Use secondary sources to find out about pollination. | Life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, bulbs, cuttings |
| Unit: Animals Including Humans | Describe the changes as humans develop to old age. | This unit is likely to be taught through direct instruction due to its sensitive nature | Puberty – the vocabulary to describe sexual characteristics |

|  |  |  |  |
| --- | --- | --- | --- |
| **Year 6** | **National Curriculum** | **Progression steps** | **Vocabulary** |
| **Autumn Term** | | | |
| Unit: Electricity | • Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.  • Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.  • Use recognised symbols when representing a simple circuit in a diagram. | 1. Explain how a circuit operates to achieve particular operations, such as to control the light from a torch with different brightnesses or make a motor go faster or slower. 2. Make circuits to solve particular problems, such as a quiet and a loud burglar alarm. 3. Carry out fair tests exploring changes in circuits. 4. Make circuits that can be controlled as part of a DT project. | Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage  N.B. Children do not need to understand what voltage is but will use volts and voltage to describe different batteries. The words “cells” and “batteries” are now used interchangeably. |
| Unit: Light | • Recognise that light appears to travel in straight lines.  • Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.  • Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.  • Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. | 1. Explore different ways to demonstrate that light travels in straight lines e.g. shining a torch down a bent and straight hose pipe, shining a torch through different shaped holes in card. 2. Explore the uses of the behaviour of light, reflection and shadows, such as in periscope design, rear view mirrors and shadow puppets. | **As for Y3:** Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous  **New Vocabulary for this unit**: Light, plus straight lines, light rays |
| **Spring Term** | | | |
| Unit: Living Things and Their Habitats | • 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.  • Give reasons for classifying plants and animals based on specific characteristics. | 1. Use secondary sources to learn about the formal classification system devised by Carl Linnaeus and why it is important. 2. Use first-hand observation to identify characteristics shared by the animals in a group. 3. Use secondary sources to research the characteristics of animals that belong to a group. 4. Use information about the characteristics of an unknown animal or plant to assign it to a group. 5. Classify plants and animals, presenting this in a range of ways e.g. Venn diagrams, Carroll diagrams and keys. 6. Create an imaginary animal which has features from one or more groups. | Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering, non-flowering |
| **Summer Term** | | | |
| Unit: Animals Including Humans | • Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.  • Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.  • Describe the ways in which nutrients and water are transported within animals, including humans. | 1. Create a role play model for the circulatory system. 2. Carry out a range of pulse rate investigations: 3. fair test – effect of different activities on my pulse rate 4. pattern seeking – exploring which groups of people may have higher or lower resting pulse rates 5. observation over time - how long does it take my pulse rate to return to my resting pulse rate (recovery rate) 6. pattern seeking – exploring recovery rate for different groups of people. 7. Research the negative effects of drugs (e.g. tobacco) and the benefits of a healthy diet and regular exercise by asking an expert or using carefully selected secondary sources. | Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle |
| Unit: Evolution and Inheritance | • Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.  • Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.  • Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. | 1. Design a new plant or animal to live in a particular habitat. 2. Use models to demonstrate evolution e.g. ‘Darwin’s finches’ bird beak activity. 3. Use secondary sources to find out about how the population of peppered moths changed during the industrial revolution. 4. Make observations of fossils to identify living things that lived on Earth millions of years ago. 5. Identify features in animals and plants that are passed on to offspring and explore this process by considering the artificial breeding of animals or plants e.g. dogs. 6. Compare the ideas of Charles Darwin and Alfred Wallace on evolution. 7. Research the work of Mary Anning and how this provided evidence of evolution. | Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils |

**APPENDIX A – COVID-19 Coverage**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
| **Nursery** | **Humans** | **Materials** | **Electricity** | **Plants** | **Animals, excluding Humans** | **Forces** |
| **Reception** | **Materials Including Changing Materials** | | **Living Things and Their Habitats (Plants)** | **Humans** | **Light** | **Animals Excluding Humans** |
| **Seasonal Change** | | | | | |
| **Year 1** | **Animals Including Humans** | | **Plants** | | **Everyday Material Properties** | |
| **Seasonal Change** | | | | | |
| **Year 2** | **Uses of Every day Materials** | **Plants** | **Living Things and Their Habitats** | | **Animals Including Humans** | |
| **Year 3** | **Plants\*** | **Light** | **Forces and Magnets** | | **Rocks** | **Animals Including Humans** |
| **Year 4** | **Electricity** | **Sound** | **States of Matter** | | **Animals, Including Humans** | **Living Things and Their Habitats\*** |
| **Year 5** | **Earth and Space** | **Forces\*** | **Properties and Changes of Materials** | | **Living Things and Their Habitats** | **Animals including Humans (taught alongside PSHE)\*** |
| **Year 6** | **Electricity** | **Light** | **Living Things and Their Habitats** | | **Animals Including Humans\*** | **Evolution and Inheritance** |