|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | | |
| **EYFS** | **Animals** | | **Humans** | **Plants** | | **Seasonal Changes** | | | **Materials** | | **Forces** |
|  | **Begin to understand the need to respect and care for the natural environment and all living things.**  **Talk about what they see using a wide vocabulary.**  **Understand the key features of the life cycle of a plant and an animal.**  . | | **Understand the key features of life cycle of an animal.**  **Make connections between the features of their families and other families.**  **Notice differences between people.**  **Continue developing positive attitudes about the differences between people.**  **Name and describe people who are familiar to them** | **Plant seeds and care for growing plants.**  **Understand the key features of life cycle of a plant.**  **Explore the natural world around them.**  **Explore and respond to different natural phonema in their setting and on trips.**  **Talk about what they see using a wide vocabulary.** | | **Describe what they see, hear and feel while outside.**  **Understand the effects of changing seasons on the natural world around them.**  **Explore the natural world around them.**  **Explore and respond to different natural phonema in their setting and on trips.**  **Talk about what they see using a wide vocabulary.** | | | **Explore materials with different properties.**  **Explore natural material indoors and outdoors.**  **Use all their senses in hands on exploration.**  **Explore collections of materials with similar and or different properties.**  **Talk about difference between materials and changes they notice.**  **Explore the natural world around them.**  **Talk about what they see using a wide vocabulary.** | | **Explore how things work.**  **Explore and talk about forces they can feel.** |
| **Vocabulary** | **Model and encourage children to use vocabulary such as:**  **• 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** | | **Model and encourage children to use vocabulary such as:**  **• 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** | **Model and encourage children to use vocabulary such as:**  **• 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** | | **Model and encourage children to use vocabulary such as:**  **• 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** | | | **Model and encourage children to use vocabulary such as:**  **• 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** | | **Model and encourage children to use vocabulary such as:**  **• float, sink, up, down, top, bottom, surface, move, roll, drop, fly, turn, spin, fall, fast, slow, faster, slower, fastest, slowest, further, furthest, wind, air, water, blow**  **Expose children to supplementary vocabulary such as:**  **• force, rotate, solid, liquid, gravity** |
|  | **Autumn 1**  **All About Me** | | **Autumn 2**  **Let’s Celebrate** | **Spring 1**  **What’s Out there?** | | **Spring 2**  **Once Upon a Time** | | | **Summer 1**  **What’s a Life Cycle?** | | **Summer 2**  **Splish, Splash, Splosh!** |
|  | **CYCLE B 2022-2023** | | | | | | | | | | |
| **KS1** | **SCIENTIFIC INVESTIGATION** | | | | | | | | | | |
|  | **Ideas and Questions** | **Planning** | | | **Observing and Presenting** | | **Looking for Patterns** | **Explaining Results** | | **Evaluating** | |
| **KS1**  **Years 1-2** | ∙ Ask simple questions and recognising that they can be answered in different ways  ∙ Recognise scientific and technical developments that help us. | ∙ Perform simple tests or follow teachers’ instructions.  ∙ With guidance, suggest what they will do.  ∙ With guidance, identify things to measure or observe that are relevant to the question.  ∙ Use resources provided or chosen from a limited range ∙ use simple measurements and equipment to gather data.  ∙ Suggest why a test is unfair. | | | ∙ Observe closely (including changes over time), using simple equipment.  ∙ Make measurements using non-standard units.  ∙ Use simple secondary sources to find answers.  ∙ Gather simple data to help answer questions.  ∙ Record findings in a range of ways, eg. simple tables, diagrams, pictograms, sorting circles, bar charts and templates.  ∙ Talk about their findings using everyday terms, text scaffolds or simple scientific language. | | Use simple observable features to compare objects, materials and living things.  ∙ Identify and classify. (decide how to sort and group objects)  ∙ With guidance, begin to notice changes. (ie. cause and effect), patterns and relationships. (ie. how one variable affects another) | ∙Talk about what they have found out and how they found it out.  ∙ Use their observations and ideas to suggest answers to questions.  ∙ Use comparative language to describe changes, patterns and relationships. | | ∙ With support, suggest whether or not what happened was what they expected.  ∙ With support, suggest different ways they could have done things. | |
| **Vocabulary** | Aim, answers, block diagrams, changes, compare, describe, difference, different, enquiry, equipment, experience, explore, findings, gather, group, identify (name), investigate, measure, observe, patterns, pictograms, questions, record, same, table, sort, diagram, tally chart, test.  What will we do? (Plan)  What do you think will happen? (prediction)  What happened? (results)  What have we found out? (conclusion) | | | | | | | | | | |
| **KS1**  **Years 1-2** | **Seasonal Changes**  **Autumn** | **Seasonal Changes**  **Winter** | | | **Living Things** | | **Animal and Humans** | **Plants** | |  | |
| **Key Questions**  *What causes the seasonal changes?*  *How does the earth’s movement create day and night?*  *What happens in the different seasons?*  *How does the weather differ from season to season?*  *What changes take place in the natural environment?* | **Key Questions**  *What causes the seasonal changes?*  *How does the earth’s movement create day and night?*  *What happens in the different seasons?*  *How does the weather differ from season to season?*  *What changes take place in the natural environment?* | | | **Key Questions**  *What is living and what is dead?*  *What do all living things need in order to survive?*  *What is a life cycle?*  *How do animals obtain their food?*  *What is a food chain?* | | **Key Questions**  *How are animals grouped?*  *What are the differences between carnivores, herbivores and omnivores?* | **Key Questions**  *What are the main parts of plant?*  *What does a plant require in order to grow healthily?*  *What is the difference between a cultivated plant and a weed?* | |  | |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Outcomes**  ∙ a season is a part of a year.  ∙ most areas of the Earth have four seasons in a year: spring, summer, autumn (British English) or fall (US English), and winter.  ∙the earth moves around the sun- orbit.  During the year, different parts of the earth are at different distances from the sun affecting the weather.  ∙ day and night occur due to the rotation of the earth on it’s axis  ∙observe changes across the four seasons | **Outcomes:**  ∙ a season is a part of a year.  ∙ most areas of the Earth have four seasons in a year: spring, summer, autumn (British English) or fall (US English), and winter.  ∙the earth moves around the sun- orbit.  During the year, different parts of the earth are at different distances from the sun affecting the weather.  ∙ day and night occur due to the rotation of the earth on it’s axis  ∙observe changes across the four seasons  ∙ observe and describe weather associated with the seasons and how day length varies.  ∙ use descriptive words, photos and pictures to record changes  ∙ collect evidence of changes (eg. leaves, seeds, flowers).  ∙ observe and name types of weather (eg.rain, sun, wind, clouds). | | **Outcomes:**  ∙ explore and compare the differences between  things that are living, dead, and things that  have never been alive  ∙ a life cycle is the series of changes that an animal or plant passes through from the beginning of its life until its death.  ∙ animals, including humans, have offspring which grow into adults.  ∙ all animals need water, air and food to survive.  ∙ describe how animals obtain their food from  plants and other animals, using the idea of a simple food chain  ∙identify and name different sources of food. | **Outcomes:**  ∙ 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) | **Outcomes:**  ∙ 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.  ∙ Identify the leaf, root, stem and flower of a plant.  ∙ Identify the trunk, branch, roots and leaves of a tree.  ∙ find out and describe how healthy plants need water, light and a suitable temperature to grow and stay healthy.  ∙ identify that seeds and bulbs do not need light to germinate and identify how this is different to the needs of a plant  ∙ observe and describe how seeds and bulbs grow into mature plants- life cycle. |  |
| **Vocabulary** | **• Seasons: spring, summer, autumn, winter, seasonal change.**  **• Weather: e.g. sun, rain, snow, sleet, frost, ice, fog, cloud, hot/warm, cold, storm, wind, thunder, weather forecast.**  **• Measuring weather: temperature, rainfall, wind direction, thermometer, rain gauge.**  **• Day length: night, day, daylight.**  **• Earth movement- orbit, axis, rotate** | **• Seasons: spring, summer, autumn, winter, seasonal change.**  **• Weather: e.g. sun, rain, snow, sleet, frost, ice, fog, cloud, hot/warm, cold, storm, wind, thunder, weather forecast.**  **• Measuring weather: temperature, rainfall, wind direction, thermometer, rain gauge.**  **• Day length: night, day, daylight.**  **• Earth movement- orbit, axis, rotate** | | **• Living or dead: living, dead, never living, not living, alive, never been alive, healthy.**  **• Life processes: movement, sensitivity, growth, reproduction, nutrition, excretion, respiration.**  **• Food chains: food sources, food, producer, consumer, predator, prey.** | **• Names of animal groups: fish, amphibians, reptiles, birds, mammals.**  **• Animal diets: carnivore, herbivore, omnivore.**  **• Animal body parts: e.g. tail, wings, feathers, fur, beak, fins, gills.** | **• Names of common plants: wild plant, garden plant, evergreen tree, deciduous tree, common flowering plant, weed, grass.**  **• Name some features of plants: e.g. flower, vegetable, fruit, berry, leaf/leaves, blossom, petal, stem, trunk, branch, root, seed, bulb, soil.**  **• Name some common types of plant e.g. sunflower, daffodil.**  **• Growth of plants: germination, shoot, root, seed dispersal, grow, life cycle, die, wilt, seedling.**  **• Needs of plants: sunlight, nutrition, soil, light, healthy, space, air.**  **• Name different types of plant: e.g. bean plant, cactus.** |  |
| **CYCLE B 2022-2023** | | | | | | | |
|  | **SCIENTIFIC INVESTIGATION** | | | | | | |
|  | **Ideas and Questions** | **Planning** | **Observing and Presenting** | | **Looking for Patterns** | **Explaining Results** | **Evaluating** |
| **KS2**  **Years 3-4** | ∙ ask relevant questions and using different types of scientific enquiries to answer them  ∙ explain the purposes of a variety of scientific and technological developments | ∙ set up simple practical enquiries, comparative and fair tests  ∙ begin to make decisions about what observations to make and how long to make them for  ∙ begin to choose the type of simple equipment that might be used from a reasonable range  ∙ use appropriate equipment and measurements with reasonable accuracy  ∙ recognises when a simple fair test is needed  ∙ with help, decide how to set up a fair test and control variables | ∙ make systematic and careful observations  ∙ make accurate measurements using standard units, using a range of equipment  ∙ recognise when and how secondary sources might help answer questions that cannot be answered through practical investigations  ∙ gather and record data in a variety of ways  ∙ make decisions about how to record and analyse the data and prepare own formats for recording  ∙ record and presents findings using drawings, labelled diagrams, keys, tally charts, Carroll diagrams, Venn diagrams, bar charts and tables  ∙ report on findings from enquiries, in simple scientific language | | ∙ use observable and other criteria to group, sort and classify in different ways (including simple keys and branching databases)  ∙ identify differences, similarities or changes related to simple scientific ideas and processes ∙ with help, look for changes, patterns, and relationships in their data | **∙** with help, use results to draw simple conclusions and answers questions using appropriate level of knowledge  ∙ use straightforward scientific evidence to answer questions or to support their findings  ∙ use relevant scientific language to discuss their ideas and communicate their findings | **∙** with support, use results to suggest improvements to what they have done  ∙ with support, raise further questions (eg. arising from the data)  ∙ with support, make predictions for new values within or beyond the data collected |
| **Vocabulary** | accurate, bar chart, classify, comparative test, conclusion (What have we found out?), criteria, data, develop, diagram, evaluate, evidence, explanation, key, fair test, method, observations, plan (What will we do?), practical enquiry, prediction (What do you think will happen?), primary sources, questioning, reasoning, relationships, results (What happened?) secondary sources, standard units, What do we change, what do we keep the same, what are we measuring? | | | | | | |
| **KS2**  **Years 3-4** | **Aut 1** | **Aut 2** | **Spr 1** | | **Spr 2** | **Sum 1** | **Sum 2** |
| **Animals and Humans**  **(Balanced Diets, Food Groups, Diets)** | **Animals and Humans**  **(Digestion, skeleton types, role of skeleton and muscles)** | **Scientific Investigative Skills**  **Keeping Healthy** | | **Electricity** | **Light** | **Sound** |
| **Key Questions**  *What does a balanced diet contain?*  *What is the role of each food group?*  *How do the diets of animals differ?*  *What is digestion?*  *What are the roles of the different parts of the digestive system?*  *What is the function of the different types of teeth in digestion?* | **Key Questions**  *What would happen if an animal didn’t have a skeleton?* | **Key Questions**  *Why is it important to keep healthy?*  *How can we keep healthy?*  *How can we keep our bodies fit?*  *Set up a comparative investigation (Why can some people run faster than others?)* | | **Key Questions**  *Why can electricity be dangerous?*  *What is a circuit?*  *What elements does a simple circuit contain?*  *How does a circuit work?*  *Which materials are conductors?*  *Which materials are insulators?* | **Key Questions**  *What is a light source?*  *What happens when there is no light?*  *Which surfaces are good reflectors?*  *How can shadows be made and how can they be changed?* | **Key Questions**  *How are sounds made and how do they travel?*  *Why do sounds change in volume and pitch?* |
| **Outcomes:**  ∙ 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 - Five food groups.  **Protein** helps to strengthen cells, bones, skin, hair and muscle.Important to help us grow and maintain our health.  **Carbohydrates** give us energy. **Fats and sugars** help with providing energy and muscle movement. **Vitamins and minerals** build strong bones and teeth and help us fight off disease.  ∙ compare and contrast the diets of different animals, and decide ways of grouping them according to what they eat  ∙ 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  ∙ find out what damages teeth and how to look after them.  ∙ compare the teeth of carnivores and herbivores and suggest reasons for the differences. | **Outcomes:**  ∙ identify that humans and some other animals have skeletons and muscles for support, protection and movement.  ∙ identify and group animals with and without skeletons, comparing their movement- endoskeletons, exoskeletons, hydrostatic skeletons.  ∙ Understand the role of muscles in movement. | **Outcomes**   * identify that nutrition, exercise and hygiene are important for keeping healthy * understand why it is important to keep healthy and the implications of not keeping healthy * understand that exercise is needed to stay fit * suggest comparative tests linked to exercise (eg: do longer legs mean you can jump further etc) * set up and conduct a comparative test * suggest | | **Outcomes:**  ∙ identify appliances that run on electricity and describe some of the dangers of mains electricity  ∙ construct a simple series electrical circuit, identifying and naming 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 it is part of a complete loop with a battery  ∙ know that a switch can open/close a circuit  ∙ recognise some common conductors and insulators, and associate metals with being good conductors. | **Outcomes:**  ∙ name a number of light sources, including the sun  ∙ 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  ∙ explore the way light is reflected from a mirror  ∙ recognise that light from the sun can be dangerous and that there are ways to protect their eyes  ∙ recognise that shadows are formed when light is blocked by an opaque object  ∙ find patterns in the way that the size of shadows change. | **Outcomes:**  ∙ 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. |
| Vocabulary | **• Food groups and nutrients: fibre, fats (saturated and unsaturated), sugars, vitamins, minerals, protein, carbohydrates,**  **• Other- cells, muscle, energy, growth, movement, disease**  **• Types of teeth and dental care: molar, premolar, incisor, canine, wisdom teeth, tooth decay, plaque, enamel, baby (milk) teeth.**  **• Digestive system: digest, digestion, tongue, teeth, saliva, salivary glands, oesophagus, stomach, liver, pancreas, gall bladder, small intestine, duodenum, large intestine, rectum, anus, faeces, organ.**  **Previously introduced vocabulary:**  **Food groups- fruit and vegetables, protein, carbohydrates, dairy, sugars, fats, dairy, fruits and vegetables.** | **• Skeletons and muscles: skeleton, muscles, tendons, joints, protection, support, organs, voluntary muscles, involuntary muscles, biceps, triceps, contract, relax, bone, cartilage, shell, vertebrate, invertebrate, exoskeleton, endoskeleton, exoskeleton, hydrostatic skeleton.**  **• Names of human bones: e.g. skull, spine, backbone, vertebral column, ribcage, pelvis, clavicle, scapula, humerus, ulna, pelvis, radius, femur, tibia, fibula.** | **See Autumn 1 and Autumn 2 scientific vocabulary.** | | **• Electricity: mains-powered, battery-powered, mains electricity, plug, appliances, devices.**  **• Circuits: circuit, simple series circuit, complete circuit, incomplete circuit.**  **• Circuit parts: bulb, cell, wire, buzzer, switch, motor, battery.**  **• Materials: electrical conductor, electrical insulator.**  **• Other: safety.**  **Previously introduced vocabulary: names of materials.** | **• Light and seeing: dark, absence of light, light source, illuminate, visible, shadow, opaque, transparent, translucent, energy, block.**  **• Light sources: e.g. candle, torch, fire, lantern, lightning.**  **• Reflective light: reflect, reflection, surface, ray, scatter, reverse, beam, angle, mirror, moon.**  **• Sun safety: dangerous, glare, damage, UV light, UV rating, sunglasses, direct.**  **Previously introduced vocabulary: opaque, transparent, sunlight, sun.** | **• Parts of the ear: eardrum.**  **• Making sound: vibration, vocal cords, particles.**  **• Measuring sound: pitch, volume, amplitude, sound wave, quiet, loud, high, low, travel, distance.** |
| **CYCLE A – 2021 – 2022** | | | | | | | |
| **SCIENTIFIC INVESTIGATIONS** | | | | | | | |
|  | **Ideas and Questions** | **Planning** | **Observing and Presenting** | | **Looking for Patterns** | **Explaining Results** | **Evaluating** |
| **KS1** | ∙ ask simple questions and recognising that they can be answered in different ways  ∙ recognise scientific and technical developments that help us | ∙ perform simple tests or follows teachers’ instructions  ∙ with guidance, suggest what they will do  ∙ with guidance, identify things to measure or observe that are relevant to the question  ∙ use resources provided or chosen from a limited range ∙ use simple measurements and equipment to gather data  ∙ suggest why a test is unfair | ∙ observe closely (including changes over time), using simple equipment  ∙ make measurements using non-standard units  ∙ use simple secondary sources to find answers  ∙ gather simple data to help answer questions  ∙ record findings in a range of ways, eg. simple tables, diagrams, pictograms, sorting circles, bar charts and templates  ∙ talk about their findings using everyday terms, text scaffolds or simple scientific language | | use simple observable features to compare objects, materials and living things  ∙ identify and classify (decides how to sort and group objects)  ∙ with guidance, begin to notice changes (ie. cause and effect), patterns and relationships (ie. how one variable affects another) | ∙ talk about what they have found out and how they found it out  ∙ use their observations and ideas to suggest answers to questions  ∙ use comparative language to describe changes, patterns and relationships | ∙ with support, suggest whether or not what happened was what they expected  ∙ with support, suggest different ways they could have done things |
| **Vocabulary** | Aim, answers, block diagrams, changes, compare, describe, difference, different, enquiry, equipment, experience, explore, findings, gather, group, identify (name), investigate, measure, observe, patterns, pictograms, questions, record, same, table, sort, diagram, tally chart, test.  What will we do? (Plan)  What do you think will happen? (prediction)  What happened? (results)  What have we found out? (conclusion) | | | | | | |
|  | **Aut 1** | **Aut 2** | **Spr 1** | | **Spr 2** | **Sum 1** | **Sum 2** |
| **KS1**  **Years 1-2** | **Humans**  **(To go across the whole term ending in an investigation)** | **Scientific Investigation**  **Keeping Healthy** | **Materials** | | **Seasonal Changes**  **Spring and Summer** | **Living Things** | **Scientific Investigational Skills**  **Materials**  **(Testing materials and making boats)** |
| **Key Questions**  *What do animals including humans need for survival?*  *What are the stages that a human goes through as it grows into an adult?*  *How do humans keep fit and healthy?* | **Key Questions**  *How can we keep healthy?*  *What do humans need to live a healthy life?* | **Key Questions**  *What is a material?*  *What are the physical properties of common materials?*  *How can the shape of some materials be changed?*  *Why are different objects made from certain materials?* | | **Key Questions**  *What causes the seasonal changes?*  *What happens in the different seasons?*  *How does the weather differ from season to season?*  *What changes take place in the natural environment?* | **Key Questions**  *What are the similarities and differences in structure between different animals?*  *What sort of habitats do animals live in?* | **Key Questions**  *What properties do different materials have?*  *Why are different objects made from different materials?* |
| **Outcomes:**  ∙ identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.  ∙ notice that humans, have offspring which grow into adults.  ∙ recognise changes that take place as humans get older.  ∙ find out about and describe the basic needs of 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.  ∙ know the five food groups that are needed in order to have a healthy body- protein, carbohydrates, dairy, vitamins and minerals, fats and sugars and which food they can be found in. | **Outcomes:**  . ∙ ask simple questions and recognise that they can be answered in different ways  ∙ perform simple tests or follows teachers’ instructions  ∙ with guidance, suggest what they will do  ∙ use resources provided or chosen from a limited range  ∙ use simple measurements and equipment to gather data to answer questions. (non- standard units)  ∙ suggest why a test is unfair  ∙ observe closely (including changes over time), using simple equipment  ∙ use simple secondary sources to find answers  ∙ record findings in a range of ways, eg. simple tables, diagrams, pictograms, sorting circles, bar charts and templates  ∙ talk about their findings using everyday terms, text scaffolds or simple scientific language | **Outcomes:**  ∙ distinguish between an object and the material from which it is made  ∙ identify, name and compare a variety of everyday materials, including wood, plastic, glass, metal, water, paper and rock  ∙ describe the simple physical properties of a variety of everyday materials and their uses  ∙ compare and group together a variety of everyday materials on the basis of their simple physical properties.  ∙ perform simple tests to explore which material would be best suited to a specific purpose.  ∙ find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.  ∙ recognise why it is important to recycle and reuse materials | | **Outcomes:**  ∙ a season is a part of a year.  ∙ most areas of the Earth have four seasons in a year: spring, summer, autumn (British English) or fall (US English), and winter.  ∙the earth moves around the sun- orbit.  During the year, different parts of the earth are at different distances from the sun affecting the weather.  ∙observe changes across the four seasons  ∙ observe and describe weather associated with the seasons and how day length varies.  ∙ use descriptive words, photos and pictures to record changes  ∙ collect evidence of changes (eg. leaves, seeds, flowers).  ∙ observe and name types of weather (eg.rain, sun, wind, clouds). | **Outcomes:**  ∙ identify and name a variety of plants and  animals in their habitats.  ∙ identify the features of different animals in their habitats.  ∙ identify that most living things live in habitats  know that different animals are suited to different habitats  describe how  different habitats provide for the basic needs of different kinds of animals and plants  ∙ observe living things in their different habitats around the school environment | **Outcomes:**  Ask questions about the properties of the different materials.  Set up an inquiry into the suitability of a material for building a model boat.  Investigate and compare the strength, buoyancy and waterproof capabilities of different materials.  Record the finding in tables and graphically.  Design, build and test a model boat.  What will we do? (Plan)  What do you think will happen? (prediction)  What happened? (results)  What have we found out? (conclusion) |
| **Vocabulary** | **• Human body parts: e.g. body, head, neck, arms, elbows, legs, knees, face, ears, eyes, nose, hair, mouth, teeth, hands, feet,**  **• Human senses: sight, hearing, touch, smell, taste.**  **• Exploring senses: bitter, sweet, loud, quiet, soft, rough.**  **• Being born and growing: Young, offspring, live young, grow, develop, change, hatch, lay, fly, crawl, talk.**  **• Young and adult names: e.g. lamb and sheep, kitten and cat, duckling and duck.**  **• Life cycle stages: e.g. baby, toddler, child, teenager, adult; frogspawn, tadpole, froglet, frog.**  **• Survival and staying healthy: basic needs, survive, food, air, exercise, diet, nutrition, healthy, balanced diet, hygiene, germs.**  **• Food groups: fruit and vegetables, proteins, dairy and alternatives, carbohydrates, fat, salt, sugar.** | **See vocabulary Autumn 1** | **• Names of materials: wood, plastic, glass, metal, water, rock, paper, cardboard, rubber, fabric.**  **• Properties of materials: hard, soft, shiny, dull, stretchy, rough, smooth, bendy, not bendy, transparent, opaque, waterproof, not waterproof, absorbent, not absorbent, sharp, stiff.**  **• Other: object, solid.**  **• Changing shape: squash, bend, twist, stretch.**  **• Properties of materials: e.g. strong, flexible, light, hard-wearing, elastic.**  **• Other: suitability, recycle, pollution.** | | **• Seasons: spring, summer, autumn, winter, seasonal change.**  **• Weather: e.g. sun, rain, cloud, hot/warm, cold, storm, wind, thunder, weather forecast.**  **• Measuring weather: temperature, rainfall, wind direction, thermometer, rain gauge.**  **• Day length: night, day, daylight.** | **• Living things: organisms, specimen, species.**  **• Grouping living things: classification, classification keys, classify, characteristics.**  **• Names of invertebrate animals: snails and slugs, worms, spiders, insects.**  **• Invertebrate body parts: e.g. wing case, abdomen, thorax, antenna, segments, mandible, proboscis, prolegs**  **.• Habitats including microhabitats: depend, shelter, safety, survive, suited, space, minibeast, air.**  **• Names of habitats and microhabitats: e.g. under leaves, woodland, rainforest, sea shore, ocean, urban, local habitat.** | **• Names of materials: wood, plastic, glass, metal, water, rock, paper, cardboard, rubber, fabric.**  **• Properties of materials: hard, soft, shiny, dull, stretchy, rough, smooth, bendy, not bendy, transparent, opaque, waterproof, not waterproof, absorbent, not absorbent, sharp, stiff.**  **• Other: object, solid.**  **• Changing shape: squash, bend, twist, stretch.**  **• Properties of materials: e.g. strong, flexible, light, hard-wearing, elastic.** |
| **CYCLE A – 2021 – 2022** | | | | | | | |
| **Scientific Investigation** | | | | | | | |
| **KS2** | **Ideas and Questions** | **Planning** | **Observing and Presenting** | | **Looking for Patterns** | **Explaining Results** | **Evaluating** |
| **KS2**  **Years**  **3-4** | ∙ ask relevant questions and using different types of scientific enquiries to answer them  ∙ explain the purposes of a variety of scientific and technological developments | ∙ set up simple practical enquiries, comparative and fair tests  ∙ begin to make decisions about what observations to make and how long to make them for  ∙ begin to choose the type of simple equipment that might be used from a reasonable range  ∙ use appropriate equipment and measurements with reasonable accuracy  ∙ recognises when a simple fair test is needed  ∙ with help, decide how to set up a fair test and control variables | ∙ make systematic and careful observations  ∙ make accurate measurements using standard units, using a range of equipment  ∙ recognise when and how secondary sources might help answer questions that cannot be answered through practical investigations  ∙ gather and record data in a variety of ways  ∙ make decisions about how to record and analyse the data and prepare own formats for recording  ∙ record and presents findings using drawings, labelled diagrams, keys, tally charts, Carroll diagrams, Venn diagrams, bar charts and tables  ∙ report on findings from enquiries, in simple scientific language | | ∙ use observable and other criteria to group, sort and classify in different ways (including simple keys and branching databases)  ∙ identify differences, similarities or changes related to simple scientific ideas and processes ∙ with help, look for changes, patterns, and relationships in their data | **∙** with help, use results to draw simple conclusions and answers questions using appropriate level of knowledge  ∙ use straightforward scientific evidence to answer questions or to support their findings  ∙ use relevant scientific language to discuss their ideas and communicate their findings | **∙** with support, use results to suggest improvements to what they have done  ∙ with support, raise further questions (eg. arising from the data)  ∙ with support, make predictions for new values within or beyond the data collected |
|  | accurate, bar chart, classify, comparative test, conclusion (What have we found out?), criteria, data, develop, diagram, evaluate, evidence, explanation, key, fair test, method, observations, plan (What will we do?), practical enquiry, prediction (What do you think will happen?), primary sources, questioning, reasoning, relationships, results (What happened?) secondary sources, standard units, What do we change, what do we keep the same, what are we measuring? | | | | | | |
| **KS2**  **Years 3-4** | **Aut 1** | **Aut 2** | **Spr 1** | | **Spr 2** | **Sum 1** | **Sum 2** |
| **States of Matter** | **Rocks** | **Scientific Investigation**  **(Our Local Environment)**  **Rock and Soil** | | **Forces and Magnets** | **Plants (Yr4)**  **(Requirements for growth,**  **parts of a plant, plant**  **reproduction and**  **life cycle)** | **Living Things and their Habitats**  **(Life processes,**  **classification,**  **habitats,**  **food chains)** |
| **Key Questions**  *What is the difference between an object and the material that it is made from?*  *How can we sort materials?*  *How do materials change when they are heated and cooled?*  *Which scientific processes take place during the water cycle?* | **Key Questions**  *What are the physical characteristics of rocks?*  *How can rocks be grouped?*  *What is the same and different about igneous, sedimentary and metamorphic rocks?*  *How are rocks formed?*  *What is a fossil and how is it made?* | **Key Questions**  *What types of rocks are used to construct our local environment?*  *How do rocks change over time and why do they change?*  *How can we classify these rocks?*  *What changes occur when rocks are submersed in water?*  *What are the similarities and differences between soil found in various locations across Leighton Buzzard?* | | **Key Questions**  *What is a force and how does it affect movement?*  *What affects the way an object will move over a surface?*  *Which materials are magnetic and which are not magnetic?* | **Key Questions**  *What are functions of the different parts of a plant?*  *What does a plant need in order to grow and thrive?*  *How is water transported within a plant?*  *What are the roles of the different part of the flower in producing a seed?* | **Key Questions**  *How can animals be grouped?*  *How do animals obtain their energy from the sun?*  *How do humans impact or change their environment?* |
| **Outcomes:**  ∙ 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.  ∙ 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. | **Outcomes:**  ∙ compare and group together different kinds of rocks on the basis of their appearance and simple physical properties  ∙ begin to understand how igneous, sedimentary and metamorphic rocks are formed.  ∙ relate the simple physical properties of some rocks to their formation.  ∙ explore that different rocks react differently to forces (eg. rubbing, water)  ∙ describe in simple terms how fossils are formed when things that have lived are trapped in rock.  ∙ recognise that soils are made from rocks and organic matter. | **Outcomes:**  ∙ observe the use of natural and manmade rocks within the locality- grains, crystals- What type of rocks can we find?  ∙ group and classify the different rocks based upon observations- hand lens, microscope  (similarity of appearance)  ∙ set up an investigation into how rocks change when submersed in water | | **Outcomes:**  ∙ understand different types of forces, including pushes, pulls, gravity and friction.  ∙ compare how things move on different surfaces  ∙ notice that some forces need contact between two objects, but magnetism can act at a distance  ∙ observe how magnets attract or repel each other and attract some materials and not others  ∙ compare and group together 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, depending on which poles are facing. | **Outcomes:**  ∙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, room to grow) and how they vary 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 dispersal. | **Outcomes:**  ∙ 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.  ∙ construct and interpret a variety of food chains, identifying producers, predators and prey.  ∙ identify the way habitats change over the year. |
| **Vocabulary** | **• States of matter: solids, liquids, gases, particles.**  **• State change: evaporate, condense, melt, freeze, heat, cool, melting point, freezing point, boiling point, water vapour.**  **• Water cycle: precipitation, evaporation, condensation, ground run-off, collection, underground water, bodies of water (sea, river, stream), water droplets, hail.**  **• Other: atmosphere.** | **• Types of rock: sedimentary rock, igneous rock, metamorphic rock.**  **• Properties of rocks: permeable, semi-permeable, impermeable, durable.**  **• Names of rocks: e.g. marble, chalk, granite, sandstone, slate.**  **• Formation of rocks and fossils: natural, human-made, magma, lava, molten rock, sediment, erosion, fossilisation, layers, bone, fossil.**  **• Soil: sandy, chalky, clay, peaty, loamy, topsoil, subsoil, bedrock, mineral, organic matter, compost.**  **• Other: palaeontology.** |  | | **• How things move: move, movement, surface, distance, strength.**  **• Types of forces: push, pull, contact force, non-contact force, friction.**  **• Magnets: magnetic, magnetic field, magnetic force, bar magnet, horseshoe magnet, ring magnet, magnetic poles (north pole, south pole), attract, repel, compass.**  **• Magnetic and non-magnetic materials: e.g. iron, nickel, cobalt.** | **• Water transportation: transport, evaporation, evaporate, nutrients, absorb, anchor.**  **• Life cycle of flowering plants: pollination (insect/wind), pollen, nectar, pollinator, seed formation, seed dispersal (animal/wind/water), reproduce, fertilisation, fertilise, stamen, anther, filament, carpel (pistil), stigma, style, ovary, ovule, sepal, carbon dioxide.**  **.** | **• Living things: organisms, specimen, species.**  **• Grouping living things: classification, classification keys, classify, characteristics.**  **• Names of invertebrate animals: snails and slugs, worms, spiders, insects.**  **• Invertebrate body parts: e.g. wing case, abdomen, thorax, antenna, segments, mandible, proboscis, prolegs.**  **• Environmental changes: environment, environmental dangers, adapt, natural changes, climate change, deforestation, pollution, urbanisation, invasive species, endangered species, extinct.** |