**Treales CE Primary School**

**Science**

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| Reception In Reception, children will develop scientific skills within the EYFS Framework. |
|  | Cycle A | Cycle B |
| Autumn  | All About Me | Animals |
| Scientific Enquiry | Identify parts of the bodyLook for patternsIdentify Senses. | Scientific Enquiry | Identify where animals may live in the world. I can look for patterns between the animal and its environment.I can observe what happens to the temperature over time with and without insulation.I can research facts about a chosen animal.I can identify different animals and use observations to move like different animals. |
| Working Scientifically | Observe parts of the bodyExplain ideas clearly.Record learning in a table. | Working Scientifically  | Notice similarities and differences within the seasons.I can make sensible predictions about where animals may live.I can explain in simple terms how animals adapt to their habitat.I can ask questions to help research facts about an animal.I can apply my knowledge of animals through movement |
| Key Vocabulary  | Head, nose, ears, neck, leg, knee, foot, toes, arm, hands, fingers, chest, tummy. Baby, toddler, teenager, adult, elderly. Sight, sound, taste, smell, touch. | Key Vocabulary  | Animal, seasons, hibernation, habitat, warm, cold, rest, fat, movement, Earth, live, weather, food, shelter. |
| Spring | Under The Sea  | Traditional Tales/People Who Help Us |
| Scientific Enquiry | I can identify animal habitatsI can identify the parts of a fish.I carry out a comparative test.I can identify patterns.I can find out about what a deep sea-ecologist does. | Scientific Enquiry | Identify different liquids and materialsSimple test | I can make observations over time.I know why we must brush our teeth.I understand the roles of people who help us. I can compare different materials. I can look for similarities and differences in people’s appearance when describing. I can identify patterns and prints. |
| Working Scientifically | I can ask simple questionsI can group using my observation skills.I can make simple predictions. I can draw pictures using my observation skills. I can make careful observations. | Working Scientifically | Make careful observationsAsk and answer simple questions.Plan simple tests. | I can test out ideas to find out new thingsI can explain why it is important to clean our teeth. I can ask questions about why firefighters need to stay fit and healthy. I can make basic predictions. I can give detailed descriptions and record my results using pictures. I can use my observation skills to solve problems. |
| Key Vocabulary  | Fish, sea, life, ocean, ocean floor, sand, silt, creature, coral reef, shore, rockpool, habitat, turtle, eye, fin, tail, mouth, gills, float, sink, barnacle, shrimp, crab, lobster, dolphin, seal, sea otter, whale, sea slug, starfish, octopus, jellyfish, shark, sea urchin, stingray. | Key Vocabulary  | Wet, dry, absorption, liquid, float, sink, waterproof, wind, blow, strong, hard, light, heavy, material. | People, dentist, firefighter, police officer, teacher, teeth, health, safe, safety, 999, emergency, emergency services, hygiene, rot, infection, help, support. |
| Summer | Colour/Keeping Healthy | Minibeasts and Growing |
| Scientific Enquiry | Look for patterns when colour mixingObservation over time colour change.Colour absorbency over time. | I can identify different ways to keep myself healthyI can observe how germs spread over time.I can identify simple patterns.I can identify different emotions. | Scientific Enquiry | I can identify the stages of a caterpillarI can observe my plant growing over time. I can use research to identify insects. I can identify parts of a minibeast. I can notice changesI can observe my habitat over time. |
| Working Scientifically | Ask how and why questionsShow curiosity and question why things happen.Observe and describe what they see using everyday language. | I can record ways to keep myself healthy. I notice how germs are spread.I can predict what will happen to my body if I exercise. I can describe and draw different emotions. | Working Scientifically | I can make careful observations.I can test out my ideas. I can record my findings. I can interpret my findings using a model.I can record using my chosen method. I can talk about my learning when creating my habitat. |
| Key Vocabulary  | Bright, dark, black, light, day, red, yellow, green, blue, pink, orange, purple, violet, torch, sun. | Healthy, food, body, mind, environment, hygienic, germs, bacteria, dentist, teeth, exercise, diet, vegetables, dairy, fat, dairy, carbohydrates, doctor heartbeat, sleep, emotion, worries, happy, sad, scared, angry, worried, excited.  | Key Vocabulary  | Minibeast, insect, habitat, diet, caterpillar, butterfly, growing, chrysalis, larvae, segmented, legs, invertebrate, exoskeleton, food, life cycle. |
| All year | Seasons |
| Scientific Enquiry | I can record ways to keep myself healthy. I notice how germs are spread.I can predict what will happen to my body if I exercise. I can describe and draw different emotions. |
| Working Scientifically | I can draw pictures to explain what happens in each season. I can make careful observations about the changes in the seasons. I can explain what happens in each seasonI can make simple predictions about which seasons things belong in. I can ask questions to help my understandingI can evaluate my learning and demonstrate my knowledge of seasons. |
| Key Vocabulary  | Summer, autumn, winter, spring, gripped, dew, trees, wise, shiver, bowers, shimmering, scamper, chill, blossom, melting, flit, cold, frosty, windy. |
| **ELG: The Natural World** **Children at the expected level of development will:*** explore the natural world around them, making observations and drawing pictures of animals and plants
* know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class
* understand some important processes and changes in the natural world around them, including the seasons and changing states of matter

Please note: The ELG’s are not to be used solely for the Science Curriculum, but to support a holistic and creative approach to learning to support the children’s needs. |

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| Oak Class – Years 1 & 2 |
|  | Cycle A | Cycle B |
| Autumn  | Material World | Animal Safari  |
| Scientific Enquiry | Identify materials and classify Classify based on how they feel. Classify materials Compare suitability of materials Patterns in test results,  | Scientific Enquiry | Spot patterns between groups of animals Identify and classify animals Comparative tests  |
| Working Scientifically | Use observations to classify Record in a table Ask and answer questions Simple testMake predictions on best materials. Evaluate test  | Working Scientifically  | Ask questions Venn diagrams Make comparisons and give reasons. Carry out tests to compare and classify  |
| Content / Knowledge | I can distinguish between an object and the material from which it is made.I can identify and name a variety of everyday materials including wood, plastic, glass, metal, water and rock.I can describe the simple properties of a variety of everyday materials.I can compare and group together a variety of everyday materials on the basis of their simple properties. | Content / Knowledge | I can identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammalsI can identify and name a variety of common animals that are carnivores, herbivores and omnivores.I can describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) |
| Key Vocabulary  | 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. | Key Vocabulary  | mammal, omnivore, carnivore, herbivore, habitat, offspring, age, growing, environment, biome, minibeast, animal, food chain, insect, fish, mammal, reptiles, bird, amphibian, Living, dead, never been alive, suited, suitable, basic need, food, food chain, shelter, move, feed, names of local habitats |
| Spring | Human body and Staying Healthy  | Changing Materials |
| Scientific Enquiry | Identify parts of body. Spot patterns between groups of animals Identify and classify animals Comparative tests  | Scientific Enquiry | Identify materials and classify Classify based on how they feel. Classify materials Compare suitability of materials Patterns in test results,  |
| Working Scientifically | Ask questions Venn diagrams Make comparisons and give reasons. Observe features of human body Carry out tests to compare and classify Make predictions using senses.  | Working Scientifically | Use observations to classify Record in a table Ask and answer questions Simple testMake predictions on best materials. Evaluate test  |
|  Content / Knowledge | I can identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammalsI can identify and name a variety of common animals that are carnivores, herbivores and omnivores.I can describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets)I can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. | Content / Knowledge | I can distinguish between an object and the material from which it is made.I can identify and name a variety of everyday materials including wood, plastic, glass, metal, water and rock.I can describe the simple properties of a variety of everyday materials.I can compare and group together a variety of everyday materials on the basis of their simple properties. |
| Key Vocabulary | Offspring, grow, adults, nutrition, reproduce, survival, water, food, exercise, hygiene, Head, body, eyes, ears, mouth, teeth, leg, omnivore, carnivore, herbivore, senses. | Key Vocabulary | 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. |
| Summer | Looking After Plants | How does your garden grow? |
| Scientific Enquiry | Find out how different fruits grow.  Observe seeds over time. Identify plants in the environment. Identify and classify parts of a plant. Identify and classify leaves. Observe leaves over time. | Scientific Enquiry | Find out how different fruits grow. Observe seeds over time. Identify plants in the environment. Identify and classify parts of a plant. Identify and classify leaves. Observe leaves over time.  |
| Working Scientifically | Make careful observations. I can explain how a seed grows. Draw and label a plant Label parts of a plant Ask yes and no questions to classify. Make simple predictions | Working Scientifically | Make careful observations. I can explain how a seed grows. Draw and label a plant Label parts of a plant  Ask yes and no questions to classify.  Make simple predictions  |
|  Content / Knowledge | To identify and describe the basic structure of a variety of common flowering plants including trees. To identify and name a variety of common wild and garden plants including deciduous and evergreen trees. | Content / Knowledge | To identify and describe the basic structure of a variety of common flowering plants including trees. To identify and name a variety of common wild and garden plants including deciduous and evergreen trees |
| Key Vocabulary | Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud. Names of trees in local area, garden and wild flowering plants. Weather (sunny, rainy, windy, snowy etc) Seasons (winter, summer, spring, autumn) sun, sunrise, sunset, Day length, Leaf, flower, blossom, bud, petal, berry, root, seed, stalk, trunk, branch, stem, bark, fruit, light, shade, sun, warm, cool, water, grow, healthy, nutrients | Key Vocabulary | Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud. Names of trees in local area, garden and wild flowering plants. Weather (sunny, rainy, windy, snowy etc) Seasons (winter, summer, spring, autumn) sun, sunrise, sunset, Day length, Leaf, flower, blossom, bud, petal, berry, root, seed, stalk, trunk, branch, stem, bark, fruit, light, shade, sun, warm, cool, water, grow, healthy, nutrients |
| All year | Seasons |
| Scientific Enquiry | Identify 4 seasons Look for patterns in colours. Observe formation of crystals over time. Compare results to research on rain. Simple comparative test. Identify different clouds  |
| Working Scientifically | Observe similarities and differences. Predict colours in a leaf. Can explain what winter feels like. Labelled diagrams Evaluate test and suggest improvements Ask simple questions  |
| Content / Knowledge | I can observe changes across four seasons.I can observe and describe weather associated with the seasons and how day length varies. |
| National Curriculum Key stage 1Plants* 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.

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 Science – key stages 1 and 2 8 Statutory requirements
* 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.

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.

Seasonal Change* observe changes across the four seasons
* observe and describe weather associated with the seasons and how day length varies.

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 microhabitats
* 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.

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.

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.

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
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| Willow Class – Years 3 & 4 |
|  | Cycle A | Cycle B |
| Autumn  | Nurturing Nature | The Amazing Human Body  |
| Scientific Enquiry | I can identify the parts of the plant.I can carry out a comparative test.I can make observations over time.I can use research and my own scientific knowledge to explain the process.I can look for patterns.I can identify and classify different seeds.I can identify different animals and classify them into different groups.I can identify and classify based on human characteristics.I can identify patterns by finding and identifying mini beast habitats.I can identify and classify living things.I can use research about endangered animals to show how environments can change.I can research the effects of changing environments on animals. | Scientific Enquiry | I can research the bones in the skeletal system.I can identify and classify parts of the human skeletal system.I can identify bones in the body and the hand.I can look for patterns in how each part of the hand moves and adjustments that need to be made.I can use secondary sources (internet clips) to find out about how muscles work.I can research the nutritional values of foods.by reading data from food labels.I can look for patterns in my results and compare the nutritional values of different foods.I can identify organs in digestive system.I can identify the different teeth in the human body and know their function.I can set up a fair test.I can identify the food each animal eats and classify. |
| Working Scientifically | I can record my findings using labelled scientific diagrams.I can plan a comparative test.I can interpret my findings using scientific knowledge.I can explain in detail what pollination is.I can evaluate my seed spinner.I can look carefully at seeds.I can observe the features of living things.I can identify similarities and differences in human characteristics.I can gather, record and classify data.I can ask relevant questions.I can use evidence to answer questions.I can record my findings from investigations using scientific language. | Working Scientifically  | I can locate and label the bones in the body accurately.I can answer questions about the uses of our bones.I can record using labelled drawings and scientific language.I can evaluate my design and suggest improvements.I can use scientific language to discuss ideas and communicate learning using a model.I can record my results in a table.I can record my results in a bar chart.I can interpret my model to demonstrate how the digestive system works.I can record my findings using a labelled diagram.I can record my results in a table.I can observe closely the food each animal eats by examining the animal faeces. |
| Content / Knowledge | I can identify and describe the functions of different parts of a flowering plant. I can explore the requirements of plant life and growth. I can investigate the way in which water is transported within plants. I can explore the part that flowers play in the lifecycle of flowering plants including pollination, seed formation and seed dispersal.  | Content / Knowledge | I can identify that humans and some other animals have skeletons and muscles for support, protection and movement.I can 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.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. |
| Key Vocabulary  | Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal- wind dispersal, animal dispersal, water dispersal, pollen, roots, stem, trunk, leaves, absorb, nutrients, reproduce, germination, stamen, style. Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate, fish, amphibian, reptile, bird, mammal, vertebrate, invertebrate, shelter, food, protection. | Key Vocabulary  | Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, skull, ribs, spine, muscles, joints. Mouth, esophagus, phalanges, tendons, biceps, triceps, intestine, anus. Pancreas, stomach, gall bladder, liver, saliva, rectum, teeth. |
| Spring | Archaeology | From the Amazon Rainforest to Antarctica |
| Scientific Enquiry | I can compare and group materials together depending on their properties.I can classify rocks using their properties.I can sort and classify materials into magnetic and non-magnetic.I can research and learn about significant scientists in history. (Mary Anning)I use research and models to help demonstrate my learning.I can make systematic and careful observations over time.I can research the bones in the skeletal system.I can identify and classify animals into vertebrate and invertebrates.I can identify the different teeth in animals and know how to categorise into carnivore, herbivore and omnivore.I can research what different animals eat.I can look for patterns in results to make conclusions.I can demonstrate my learning using research and my own scientific knowledge. | Scientific Enquiry | I can compare and group materials depending in their properties.I can look for patterns in my observations.I can construct a fair test to investigate melting points.I can observe over time what happens when a liquid changes to a solid.I can observe the water cycle over time to describe the process.I can identify different animals and classify theminto groups.I can identify and classify based on human characteristics.I can identify patterns by finding and identifying mini beast habitats.I can research what animals eat.I can use research about endangered animals to show how environments can change.I can carry out a comparative test to prove how animals adapt to their environment. |
| Working Scientifically | I can make careful observations and identify similarities and differences.I can record my classifications in a table, Venn diagram or Carrol diagram.I can record my results in a table and rank my rocks to answer enquiries.I can interpret the process of fossilisation using a model and pictures.I can ask questions to deepen my learning about rock formation.I can set up tests to answer questions.I can locate and label the bones in the body accurately.I can make careful observations to sort animals into groups.I can record my findings using a labelled diagram.I can ask questions to find out what each animal eats.I can use measurements and evidence to make conclusions.I can evaluate my learning. | Working Scientifically | I can make careful observations and identify similarities and differences.I can make predictions using straightforward evidence and observations.I can use a thermometer to take accurate measurements (observe closely to nearest degree)I can interpret what I have observed using my own scientific knowledge.I can record using diagrams what I know about the water cycle.I can observe the features of living things.I can identify similarities and differences in human characteristics.I can gather, record and classify data.I can ask questions to find out what each animal eats.I can use evidence to answer questions.I can evaluate and communicate my methods and findings. |
|  Content / Knowledge | To compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. To describe in simple terms how fossils are formed when things that have lived are trapped within rock. To recognise that soils are made from rock and organic matter. I can identify that humans and some other animals have skeletons and muscles for support, protection and movement.I can 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. |  Content / Knowledge | 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.Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.To recognise that living things can be grouped in a variety of ways.To explore and use classification keys to help group.Identify and name a variety of living things in the environment.Recognise that environments can change and this can sometimes pose dangers to living things. |
| Key Vocabulary | 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. Teeth, incisor, canine, molar, premolar, herbivore, carnivore, omnivore, skeleton, bones, ribs, spine, muscles, support, joints, protect, move, skull, endoskeleton, Exoskeleton, hydro skeleton. | Key Vocabulary | Solid, liquid, gas, state, change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle, matter, air, oxygen, ice, water, water vapor, steam, heated, heat, cooled, cool, temperature, degrees Celsius, melt, melting point, freeze, freezing point, solidify, boil, boiling point, evaporate, evaporation, condense, condensation, precipitation, infiltration. Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate. |
| Summer | Movie Magic | How stuff works |
| Scientific Enquiry | I can compare how different materials react to light.I can spot patterns in my results to answer questions.I can observe what happens over time.I can look for pattens in my results to make a conclusion.I can look for pattens in my results to make a conclusion.I can observe a shadow over time.I can carry out a fair test and control variables.I can look for patterns in the size of my shadows for effect.We are identifying how sounds are made.I can plan a fair test.I can spot patterns in my results.I can spot pattens in my results to make conclusions.I can carry out a pattern seeking enquiry. | Scientific Enquiry | I can identify electrical components and classify electrical appliances.I can identify patterns in my observations.I can conduct a comparative test.I can identify the properties of different materials.I can find out about different scientists and energy sources.I know how electricity has developed over time.I can group and classify different forces based on observations and scientific knowledge.I can use the research and findings of John McAdam to create my own road surfaces.I can sort and classify materials into magnetic and non-magnetic. I can carry out a fair test using magnets.I can spot patterns in my drawings and explain what is happening in terms of magnetic fields.I can use research and secondary sources toaid my explanations. |
| Working Scientifically | To raise own questions when exploring materials and light.I can make predictions based on scientific questions.I can set up practical comparative tests using my own ideas.I can record my results in a table.I can interpret my results and report on patterns found.I can evaluate my test and suggest improvements.I can observe what happens when the puppet is moved closer to the light source.I can observe vibrations which cause sound.I can set up tests to create the best string phone.I can record my resultsin a table to spot patterns.I can record my results in a table and a line graph.We are observing how sounds are created and feeling the vibrations causing the sound. | Working Scientifically | I can record my work using labelled drawings.I can make predictions using scientific language.I can interpret my results using my scientific knowledge.I can evaluate my switch design.I can pose scientific questions.I can record how electricity has help us.I can observe different forces.I can evaluate my choices and suggest further improvements.I can predict whether materials are magnetic or not.I can plan a fair test.I can record my findings using scientific drawings.I can use models to explain findings. |
|  Content / Knowledge | To recognise we need light in order to see things and that dark is the absence of light. Light is reflected from surfaces. Recognise that light from the sun can be dangerous and that there are ways to protect your eyes. Recognise that shadows are formed when light from a light source is blocked by an opaque object. Find pattens in the way that the shadows change.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 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. | Content / Knowledge | I can compare how things move on different surfaces. I notice that some forces need contact between two objects, but magnetic forces can act at a distance. I can observe how magnets attract or repel each other and attract some materials and not others. I can 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. I can describe magnets as having two poles. Predict whether two magnets will attract or repel each other, depending on which poles are facing. Identify common appliances that run on electricity. Construct 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 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.  |
| Key Vocabulary | Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous, sound, source, vibrate, vibration, travel, pitch, volume, faint, loud, insulation. | Key Vocabulary | Electrical, appliance, mains, plug, circuit, component, cell, battery, positive, negative, connect/connectors, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol, voltage, current. 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. |
| National Curriculum Lower Key Stage 2Plantsidentify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowersexplore 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 plantinvestigate the way in which water is transported within plantsexplore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersalAnimals, 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
* 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

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

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

Forces and magnets* compare how things move on different surfaces
* notice that some forces need contact between 2 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 2 poles
* predict whether 2 magnets will attract or repel each other, depending on which poles are facing

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

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

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

Electricityidentify common appliances that run on electricityconstruct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzersidentify 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 batteryrecognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuitrecognise some common conductors and insulators, and associate metals with being good conductors |

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| Elder Class – Years 5 & 6 |
|  | Cycle A | Cycle B |
| Autumn  | Out of this world  | Bright Sparks |
| Scientific Enquiry | I can identify different materials and classify based on its properties.I can identify the properties of different materials based on if they dissolve or not.I can make observations over time to see if materials can be separated.I can compare how reversible and irreversible materials act when heated and cooled.I can notice patterns in my results.I can learn about famous scientists and what major discoveries they have made.I can identify and classify planets.I can identify and classify planets.I can observe changes over time.I can use research and secondary sources to find out about the Moon.I can look for patterns in how much day light each place gets in relation to where the country is located.I can conduct a fair test where variables are identified and controlled. | Scientific Enquiry | I can look for patterns in how light reflects from surfaces.I can use subject knowledge and research to make a periscope.I can identify different parts of the eye and explain how each part works.I can look for patterns in my observations.I can use subject knowledge about refraction to make predictions.I can look for patterns in how we see things.I can identify different electrical components.I can notice patterns when I add more bulbs to a circuit.I can compare how effective different materials are to make a battery.I can carry out a fair test to compare voltage with the amount of sound produced in a circuit.We are researching different ways to apply our electronic knowledge.I can identify the correct component to use in a circuit following step by step instructions. |
| Working Scientifically | I can evaluate my test.I can make predictions about which materials are soluble or insoluble.I can use scientific language and illustrations to discuss, communicate and justify scientific ideas.I can make careful observations when heating solutions.I can plan my own investigation to test how materials react with each other.I can record my results in a table.I can raise questions and ask questions and suggest reasons for similarities and differences.I can use measurement to represent planets in a model.I can record my work using scientific diagrams and labels when representing the Moon phases.I can use a model to discuss, communicate and justify scientific ideas using scientific vocabulary.I can present my results in a variety of ways to answer a question.I can plan my own fair test and control variables. | Working Scientifically  | I can use scientific diagrams, models and labels.I can use labelled diagrams to support my explanation.I can make careful observations about how the eye works.I can draw diagrams to represent concepts with accuracy.I can make predictions based on scientific knowledge and use tests to gather evidence to support my predictions.I can evaluate, using scientific language, how my enquiry answers the question.I can answer questions by investigating.I can take accurate measurements using a data logger.I can make predictions using my own ideas and subject knowledge.I can use my results and present them in a line graph.I can use labelled diagrams to support my explanations.I can use scientific diagrams and labels accurately. |
| Content / Knowledge | To compare and group together everyday materials based on their properties, including hardness, solubility, transparency, conductivity and response to magnets. To 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 solid, liquid and gas to decide how mixtures might be separated including through filtering, sieving and evaporation. Give reasons based on evidence from comparative 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 this kind of change is not usually reversible including changes associated with burning and the action of acid on bicarbonate of soda. 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 approximate spherical bodies. Use Earth rotation to explain day and night due to the apparent movement of the sun across the sky. | Content / Knowledge | 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. To 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. To associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. To use recognised symbols when representing a simple circuit in a diagram. |
| Key Vocabulary  | Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/not reversible, change, burning, rusting, new material. Earth, sun, moon, Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune, Pluto (dwarf planet), spherical, solar system, rotates, star, orbit, planets, axis, night, day, season, galaxy. Meteorite, celestial. | Key Vocabulary  | Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous, refraction, medium, dense. Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage. |
| Spring | Living, growing and changing | Following Darwin’s Steps |
| Scientific Enquiry | I can identify patterns that might be found in the natural environment.I can sort and classify different life cycles to identify similarities and differences.I can independently use secondary sources to research the work of naturalists and animal behaviourists.I can report and present my findings from research.I can present my findings including explanations in oral and written forms.I can look for patterns when considering gestation periods of animals.I can look for patterns in gestation periods.I can notice changes over time.I can use research and my own subject knowledge to order stages of human development.I can identify changes in the body.I can use research and subject knowledge to help others.I can use research and subject knowledge to help others. | Scientific Enquiry | I can identify scientific evidence that has been used to support or refute ideas or arguments.I can talk about and explain my research using scientific knowledge and understanding. |
| Working Scientifically | I can use oral and written forms to report conclusionsI can present data in a variety of different ways to help answer my questions.I can ask relevant questions and find ways to answer them.I can make accurate and relevant predictions.I can suggest next steps based on the weakest aspects of my enquiry.I can record my results using a bar chart and can explain the results.I can make predictions on gestation periods of animals.I can record data using a scatter graph.I can make careful observations as we grow older.I can record my learning using scientific diagrams and vocabulary.I can interpret my findings to help others.I can evaluate my learning. | Working Scientifically | I can use ideas from secondary sources to support my ideas.I can raise questionsabout a range ofphenomena |
| Content / Knowledge | Describe the differences in life cycles of a mammal, an amphibian, an insect and a bird.Describe the life process of reproduction in some plants and animals.Describe the changes as humans develop to old age. | Content / Knowledge |  |
| Key Vocabulary | life cycle, live, young, fertilises, egg, runners, reproduce, sperm, metamorphosis gestation, cuttings, plantlets, bulb, sexual/asexual reproduction, Adolescent, adult, asexual reproduction, sexual reproduction, fertilization, death, teenager, elderly, toddler, reproduction, fetus, growth, puberty, menstrual cycle, gestation. | Key Vocabulary |  |
| Summer | Engineering | Healthy body, Healthy mind |
| Scientific Enquiry | I can research the effects of gravity and research Sir Isaac Newtons theories.I can observe over time how many times the pendulum swings.I can conduct a fair test to explore the effects of air resistance on a falling object.I can conduct a comparative test to investigate water resistance.I can look for patterns in my results.I can use my previous research to design and build a boat.I can conduct a comparative test to investigate friction.Comparative/fair testing.I can look for patterns in my results.I can look for patterns in my results. | Scientific Enquiry |  |
| Working Scientifically | I can observe different forces and measure the force using scientific equipment.I can set up a test which answers a scientific enquiry, to change the speed of a pendulum.I can interpret and communicate results, from my data using scientific vocabulary. I can make recommendations to the sky diving company.I can plan different types of enquiry to answer questions.I can record my results in a table.I can evaluate my boat design.To take measurements using a range of scientific equipment with increasing accuracy and precision, taking repeat readings.To take measurements using a range of scientific equipment with increasing accuracy and precision taking repeat readings.I can interpret what I’ve learnt using models.I can record my results in a table. | Working Scientifically |  |
| Content / Knowledge | Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. (The act of gravity on our lives) Identify the effects of air resistance, water resistance and friction, which act between moving surfaces. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. |  Content / Knowledge |  |
| Key Vocabulary | Force, Gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears, Newton, up thrust, opposing, streamline, brake, cog, weight, mass. | Key Vocabulary |  |
| National Curriculum Upper Key Stage 2 Living things and their habitatsdescribe the differences in the life cycles of a mammal, an amphibian, an insect and a birddescribe the life process of reproduction in some plants and animalsdescribe 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

Animals, including humansdescribe the changes as humans develop to old ageidentify 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

Properties and changes of materialscompare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnetsknow that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solutionuse knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporatinggive reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plasticdemonstrate that dissolving, mixing and changes of state are reversible changesexplain 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 sodaEarth and spacedescribe the movement of the Earth and other planets relative to the sun in the solar systemdescribe the movement of the moon relative to the Earthdescribe the sun, Earth and moon as approximately spherical bodiesuse the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the skyForcesexplain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling objectidentify the effects of air resistance, water resistance and friction, that act between moving surfacesrecognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effectEvolution and inheritancerecognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years agorecognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parentsidentify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolutionLightrecognise that light appears to travel in straight linesuse the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eyeexplain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyesuse the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast themElectricityassociate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuitcompare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switchesuse recognised symbols when representing a simple circuit in a diagram |