

**Heathcoat Primary School**

**Science Curriculum – Progression of Key Skills and Knowledge**

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| Date | Review date | Subject leaders |
| 20.7.2023 | July 2024 | Steph BowkettAmy JohnsonYvonne Kneller |
|  It is our intention that pupils will be taught a curriculum that:    • builds upon prior knowledge. The progression of skills is created to ensure all children have a secure understanding and knowledge of key science concepts   • develops creativity and challenges all • will develop aspirational learners with an awareness of the key role that science plays within our community and the world, and the opportunities that this creates for future careers   • encourages our children to be self-motivated, independent, curious and resilient learners by developing inquiry-based skills and sessions.  |

**Curriculum Organisation**

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| **Year / Term** | **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
| **1** | Animals including humansWhat body parts do we have and how do we use them to explore the world? | Seasonal changesHow does our weather change through the year? Everyday materialsWhat materials do we use and what are they like? |  | AnimalsHow do we group animals? | PlantsWhat are the parts of plants and trees? |  |
| **2** | Uses of everyday materialsWhy do we use certain materials for things? | Living things and their habitatsWhat is a living thing? Where do animals live and why? | Animals including humansWhat do humans need to survive? |  | PlantsHow do seeds and bulbs grow into healthy plants? |  |
| **3/4 Year B** (from Sept 2023)  | Light Why do we need light and what is a shadow? | RocksWhat are different rocks like and how are fossils made? | Forces and magnetsHow do things move and how do magnets work? | PlantsHow do plants grow and what is their life cycle? | Animals including humans -SkeletonsHow do humans stay healthy? What job do our skeletons and muscles do?Moved to Summer 2 as longer topic to cover  |
| **3/4 Year A** **(from Sept 2023)**  | States of matterWhat is a solid, liquid and gas? | SoundHow are sounds made and how do we hear them? | ElectricityWhat is an electric circuit and how do they work? | Living things and their habitats - classification, changing environmentsHow do we classify animals and their environments? | Animals including humans What is the digestive system?(Re-cap Herbivore, carnivore, omnivore from Year 1-usually taught in Year 3) |
| **5** | Properties and changes of materialsHow do solid, liquid and gases change state? |  | ForcesWhat is the force of gravity? | Earth and SpaceWhat is the solar system? | Animals including humans - How do humans develop as they get older? | Living things and their habitats - What is the life cycle of a mammal, insect, amphibian, bird and plants? |
| **6** |  | LightHow does light travel from different light sources? | ElectricityHow do you vary an electric circuit and identify its components? | Evolution and inheritenceHow have humans and animals evolved? | Animals including humans-What is the circulatory system and what is its function? | Living things and their habitats – How can we classify micro-organisms, plants and animals? |

(Topics may be moved around across the year)

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| Progression Map |
| **Year 1** | **Year 2** | **Year 3 (Year B)** | **Year 4 (Year A)** | **Year 5** | **Year 6** |
| Research |
| **Animals including humans**Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammalsIdentify and name a variety of common animals that are carnivores, herbivores and omnivores | **Animals including humans**Recognise the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. | **Animals including humans**Ask relevant questions and using different types of scientific enquiries to answer themLearn about different food groups and how they keep us healthy. | **Animals including Humans**Describe the different parts of parts of the digestive system in humans and their functions. Identify the different types of teeth in humans and their simple functions. Explain how food chains work, identifying producers, predators and prey. | **Animals including humans** Identify and explain the changes as humans develop to old age.  | **Animals including humans**Research to gain information to be able to write a scientific report on how the human circulatory system works.Use labelled diagrams to support understanding of how nutrients and oxygen are delivered around the body.Use information to identify the main components of the heart. |
|  | **Living things and their habitats** 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 otherIdentify and name a variety of plants and animals in their habitats, including microhabitats |  | **Living things and their habitats** Explore human impact on the local environment.Explain that living things can be grouped in a variety of way.Explain how environments can change and that this can sometimes pose dangers to living things.Use secondary sources to find out about how environments may naturally change. | **Living things and their habitats**Draw and label scientific diagrams Make observations relating to the life cycle of a range of animals both from books and in class observation.  | **Living things and their habitats**Describe how living things are classified into groups based on characteristics and based on similarities and differences, including microorganisms, plants and animals Give reasons for classifying plants and animals based on specific characteristics.Research an unfamiliar animal or plant using its characteristics to establish where it belongs in the classification systemUse secondary sources to learn about the formal classification system devised by Carl Linnaeus and why it is important. |
| **Plants**Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. | **Plants**Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. | **Plants**Research 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.  |  |  |  |
| **Materials**Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. | **Use of everyday materials**Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. |  | **States of matter**Use secondary sources to find out about the water cycle.Name a range of solids, liquids and gases Identify and group materials based upon their state.Explain the particle structure of solids, liquids and gases Describe how some materials can change state – solid to liquid, liquid to solid and liquid to gas. Describe how materials change through heating and cooling. Explain and measure the temperature at which materials change state . | **Properties and changes of materials**Compare and group together materials and their propertiesExplain that some changes result in the formation of new materials, and that this kind of change is not usually reversible.Observe which materials will dissolve in liquid to form a solution. Discuss reversible and irreversible changes. Learn about new materials produced by chemists e.g. Spencer Silver (glue of sticky notes) and Ruth Benerito (wrinkle free cotton).  |  |
|  |  | **Light**Learn how the sun can be dangerous and that there are ways to protect their eyes. |  |  |  **Light**Investigate the use of mirrors to reflect light and record using straight line diagrams to indicate the direction of light. |
|  |  | **Rocks**Identify and classify rocks. Describe in simple terms how fossils are formed when things that have lived are trapped within rock. |  |  |  |
|  |  | **Forces and magnets** Explore how things move.Describe magnets as having 2 poles.Identify how magnets are useful in everyday items and suggesting creative uses for different magnets. |  |  |  |
| **Seasonal changes**Pupils should talk about changes in the weather and the seasons. |  |  |  | **Earth and space**Identify Earth, and other planets, relative to the Sun in the solar system. Describe and compare the movements of the Moon, the Earth and the Sun. Identify the Sun as spherical Explain the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky.Learn that the Sun is a star at the centre of our solar system and that it has eight planets.Pupils should be aware that the sun can damage eyes and that we should not look at it directly.  |  |
|  |  |  | **Sound**Identify how sounds are made.Explain how vibrations from sounds travel through a medium to the ear. |  |  |
|  |  |  | **Electricity**Explain what needs electricity to work. |  |  |
|  |  |  |  | **Forces**explain 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 effect. |  |
|  |  |  |  |  | **Evolution and inheritance**Research the work of Mary Anning and understand how this provided evidence of evolution.Compare the ideas of Charles Darwin and Alfred Wallace on evolution.Identify and use examples of fossil evidence that support the theory of evolution. |
| Pattern Seeking |
| **Animals including humans**Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) |  |  | **Animals including humans**Find out what damages teeth and how to look after them. | **Animals including humans**Find out and record the length and mass of a baby as it grows. | **Living things and their habitats** Describe how living things are classified into groups based on characteristics and based on similarities and differences, including microorganisms, plants and animals |
|  | **Living things and their habitats**Explore and compare the differences between things that are living, dead, and things that have never been alive |  | **Living things and their habitats**Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.Explain how environmental changes can have an impact on the local and wider environment.  | **Living things and their habitats**Use data to compare and find patterns, for example to compare the gestation times for mammals and look for patterns e.g. in relation to size of animal or length of dependency after birth/Look for patterns between the size of an animal and its expected life span). |  |
| **Plants**Identify and describe the basic structure of a variety of common flowering plants, including trees. | **Plants**Observe and describe how seeds and bulbs grow into mature plants. | **Plants** Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. |  | Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporatingExplain that some changes result in the formation of new materials, and that this kind of change is not usually reversible. |  |
| **Materials**Distinguish between an object and the material from which it is made.Describe the simple physical properties of a variety of everyday materials. | **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. |  | **States of matter**compare and group materials together, according to whether they are solids, liquids or gases |  |  |
| **Seasonal changes**Observe changes across the 4 seasonsObserve and describe weather associated with the seasons and how day length varies |  |  |  | **Earth and space**Identify the Sun as spherical Explain the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky.Consider the views of scientists in the past and how evidence was used to deduce the shapes and movements of the Earth, Moon and planets before space travel. |  |
|  |  | **Light** Observe how light is reflected from surfacesFind patterns in the way that the size of shadows change. |  |  |  |
|  |  | **Forces and magnets**Observe how 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. |  |  |  |
|  |  |  | **Sound** 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. |  | **Electricity**Make electric circuits and demonstrate, following investigation, how variation in the working of components can be changed |
|  |  |  |  |  | **Evolution and inheritance**Identify characteristics that will make a plant or animal suited or not suited to a particular habitat. |
| Change over Time/Observation  |
| **Animals including humans**Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets). | **Animals including humans**Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. | **Animals including humans**Compare and contrast the diets of different animals (including their pets) and decide ways of grouping them according to what they eat.Identify that animals, including humans, need the right types and amount of nutrition.Identify that humans and some other animals have skeletons and muscles for support, protection and movement | **Animals including humans**Draw and discuss ideas about the digestive system and compare them with models or images.Observe what damages teeth and how to look after them | **Animals including humans**Learn about the changes to the human body during puberty.Draw a timeline to indicate stages in the growth and development of humans. | **Living things and their Habitats.** Describe how living things are classified into groups based on characteristics and based on similarities and differences, including microorganisms, plants and animals |
|  | **Living things and their habitats**Explore and compare the differences between things that are living, dead, and things that have never been alive. |  | **Living things and their habitats**Observe local environment throughout the year to raise and answer questions that help to identify and study plants and animals in their habitat. | **Living things and their habitats**Grow and observe plants that reproduce asexually e.g. strawberries, spider plant, potatoesDraw and label appropriate scientific diagrams following use of books and in class observations relating to the life cycle of a range of animals. |  |
| **Plants**Plant seeds and observe how they grow and change by making simple observations. | **Plants**Observe and describe how seeds and bulbs grow into mature plants.Pupils should use the local environment throughout the year to observe how plants grow. | **Plants** Make close observations to see what happens to plants when they are put in different conditions. Observe how water is transported within plants.  |  | Observe which materials will dissolve in liquid to form a solution. Discuss reversible and irreversible changes. |  |
|  | **Use of everyday materials**Explain from their observations how materials change when a force is exerted on them by squashing, bending, twisting and stretching. |  | **States of matter**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). | **Properties and changes of materials**Observe which materials will dissolve in liquid to form a solution. Discuss reversible and irreversible changes.Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible.Learn about new materials produced by chemists e.g. Spencer Silver (glue of sticky notes) and Ruth Benerito (wrinkle free cotton). |  |
| **Seasonal changes**Observe changes across the 4 seasonsObserve and describe weather associated with the seasons and how day length varies |  |  |  | **Earth and space**Make first-hand observations of how shadows caused by the Sun change through the day. |  |
|  |  | **Light** Observe how shadows are formed when the light from a light source is blocked by an opaque object.Observe that they need light in order to see things and that dark is the absence of light |  |  | **Light**Use mirrors, torches and protractors to demonstrate and record how light is reflected in a mirror and how we see ourselves in a mirror. |
|  |  |  | **Electricity**Observe 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 |  | **Electricity**Draw circuit diagrams of a range of simple series circuits, using recognised symbols.Communicate structures of circuits using circuit diagrams with recognised symbols |
|  |  | **Rocks**Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.Observe different rocks.  |  |  |  |
|  |  | **Forces and Magnets** observe that magnetic forces can act without direct contact, unlike most forces, where direct contact is necessary (for example, opening a door, pushing a swing). Explore the behaviour and everyday uses of different magnets. |  |  | **Evolution and inheritance**Demonstrate an understanding, with specific examples, of how an animal or plant has evolved over time e.g. penguin, peppered moth. |
| Classification |
| **Animals including humans**Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammalsIdentify and name a variety of common animals that are carnivores, herbivores and omnivores |  | **Animals including humans**Investigate and group animals with and without skeletons and observing and comparing their movement; exploring ideas about what would happen if humans did not have skeletons | **Animals including humans**Identifies differences, and similarities of different types of teeth according to herbivore, omnivore and carnivore. | **Properties and changes of materials** Compare hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets | **Animals including humans**Research an unfamiliar animal or plant using its characteristics to establish where it belongs in the classification system.Use information about the characteristics of an unknown animal or plant to assign it to a group. |
|  | **Living things and their habitats**Classify things that are living, dead, and things that have never been alive. |  | **Living things and their habitats**Use classification keys to help group, identify and name a variety of living things in their local and wider environment.Explore possible ways of grouping a wide selection of living things that include animals, flowering plants and non-flowering plants. | **Living things and their habitats**Organise mammals into different groups - sea and land and marsupials and use scientific evidence to refute/support correct/incorrect statements (such as ‘dolphins are fish’). Compare and contrast the life cycles of different living things and classify them. | **Living things and their habitats**Classify plants and animals and record conclusions from the use of classification keys.Use information about the characteristics of an unknown animal or plant to assign it to a group. |
| **Plants**Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees |  | **Plants** Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal |  |  |  |
| **Materials**Compare and group together a variety of everyday materials on the basis of their simple physical properties. |  |  | **States of matter**Observe closely and classify a range of solids and liquids.Classify materials according to whether they are solids, liquids and gases.Group and classify a variety of different materials. | **Solar System**Learn that the Sun is a star at the centre of our solar system and that it has eight planets that are all different. |  |
|  |  | **Rocks**Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties |  |  |  |
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|  |  | **Forces and magnets** 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. | **Electricity**Sort insulators and conductors.Find out the best materials which are conductors and insulators.  |  |  |
| Fair and comparative testing |
| **Animals including humans**Say which part of the body is associated with each sense. (Using their senses to compare different textures, sounds and smells.) | **Animals including humans**Pupils work scientifically by: observing, through video or first-hand observation and measurement, how different animals, including humans, grow; asking questions about what things animals need for survival and what humans need to stay healthy; and suggesting ways to find answers to their questions. | **Animals including humans**Investigate and group animals with and without skeletons and observing and comparing their movement; exploring ideas about what would happen if humans did not have skeletons. | **Animals including humans**Construct and interpret a variety of food chains, identifying producers, predators and prey.Label the different parts of the digestive system and their functions.Set up simple practical enquiries, comparative and fair tests.Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. |  | **Animals including humans**Conduct a fair investigation on the effects of exercise on the heart. Use scientific equipment to track results and record data using tables and graphs. Analyse whole class data after investigation to compare and reflect on findings and draw conclusions. |
|  |  |  | **Living things and their habitats**Use and make simple guides or keys to explore and identify local plants and animal. Ask questions based on their observations of animals and what they have found out about other animals that they have researched. |  | **Light**Investigate the use of mirrors to reflect light and record using straight line diagrams to indicate the direction of light. |
|  | **Plants**Pupils work scientifically by: observing and recording, with some accuracy, the growth of a variety of plants as they change over time from a seed or bulb, or observing similar plants at different stages of growth; setting up a comparative test to show that plants need light and water to stay healthy. | **Plants** Investigate the way in which water is transported within plantsInvestigate 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.Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.Use data loggers to record findings.  |  |  |  |
| **Materials**Pupils might work scientifically by: performing simple tests to explore questions, for example: ‘What is the best material for an umbrella?  | **Use of everyday materials**Pupils might work scientifically by: comparing the uses of everyday materials in and around the school with materials found in other places (at home, the journey to school, on visits, and in stories, rhymes and songs); observing closely, identifying and classifying the uses of different materials, and recording their observations. |  | S**tates of matter**Investigate what happens when materials change state.report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions  | **Properties and changes of materials**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.Investigate rates of dissolving by carrying out comparative and fair tests and record findings.Explore a range of non-reversible changes e.g. rusting, adding fizzy tablets to water, burning. |  |
| **Seasonal changes**Pupils might work scientifically by: making tables and charts about the weather using simple equipment (rain gauge, anemometer, thermometer and a cloud okta’s window. |  |  |  | **Solar System** Pupils design and make a model of the Sun and Earth that enables them to explain day and night. Make a sundial and report on findings about shadows at different times of the day.  |  |
|  |  |  | **Sound**Investigate that sounds get fainter as the distance from the sound source increase.Make predictions and draw conclusions about the pitch and volume of sounds. |  |  |
|  |  |  | **Electricity**Investigate that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuitInvestigate some common conductors and insulators, and associate metals with being good conductors.Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzersMaks systematic and careful observations and, where appropriate, taking accurate measurements using standard units.Use a range of equipment, including thermometers and data loggers. |  | **Electricity**Plan and select resources for a fair scientific enquiry, deciding which variables to control.Record results from an experiment using tables and graphs.Evaluate and explain their investigation, results and conclusions. |
|  |  | **Light** Investigate that shadows are formed when the light from a light source is blocked by an opaque object.Investigate what happens to shadows when the light source moves or the distance between the light source and the object changes. |  |  | **Light**Plan and conduct a test to investigate how light travels and explain/present the findingsMeasure and record the angle of incidence and angle of reflection using a protractor and detailed diagram. |
|  |  | **Rocks**Investigate soils and explain how they are made from rocks and organic matter.Explore different soils and identify similarities and differences between. Investigate what happens when rocks are rubbed together or what changes occur when they are in water. Raise and answer questions about the way soils are formed.Use a hand lens or microscope to help identify and classify rocks according to whether they have grains or crystals, and whether they have fossils in them. |  |  |  |
|  |  | **Forces and magnets** Predict whether 2 magnets will attract or repel each other, depending on which poles are facing.Investigate how different things move and grouping them.Ask questions.Carry out tests to find out how far things move on different surfaces. Gather and record data to find answers to their questions |  | **Forces**Investigate the effects of air resistance in a range of contexts e.g. parachutes, spinners, sails on boats. Explore how levers, pulleys and gears work.Investigate the effects of water resistance in a range of contexts e.g. dropping shapes through water, pulling shapes e.g. boats along the surface of water. Investigate the pull on different objects using a newton meter and record forces in Newtons. |  |
| Vocabulary |
| List the vocab per topic |
|  |  |  |  |  | **Evolution and Inheritance**: **Core:** sexual reproduction, inherited, offspring, suited, fossils**Extending:** vary, adapted, inherited, species,  |
|  |  |  | **Electricity:****Core:** lightbulb, power, buzzer, flow, conductor, insulator, current, wire, mains, switch, safety, danger, crocodile clip, plug, battery**Extending:** connection, electrocute, appliance, device, socket  |  | **Electricity**:NB 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**Core:** connection, short circuit, wire, crocodile clip, bulb, bright/dim, switch, buzzer, volume, motor, fast(er)/slow(er), conductor, insulator**Extending:** positive, negative, component, resistance (voltage?) |
| **Animals including humans:****Core:** Fish, Reptiles, Mammals, Birds, Amphibians (+ examples of each) Herbivore, Omnivore, Carnivore.**Extending:** Leg, Arm, Elbow, Head, Ear, Nose, Back, Wings, Beak, Claw, Talon, Flipper, Trunk, Gills, Fins, Feathers, Tail, Shell. | **Animals including humans:****Core:** Survival, Water, Air, Food, Adult, Baby, Offspring, Exercise, Hygiene, Food, Nutrition, Growth, Life cycle, Timeline, Changes.**Extending :** | **Animals including humans:****Core:** skeleton, healthy, movement, carbohydrates, proteins, minerals, energy, nutrition, fats, sugars, growth, vitamins, invertebrate, invertebrate **Extending:** repair, tendons, contract, pelvis, femur, biceps, contract, relax  | **Animals including humans:****Core:** teeth, incisors, molars, canines, jaw, digestion, wisdom teeth, digestive system, nutrition, mouth, teeth, saliva, digestion, stomach **Extending:** herbivore, carnivore, omnivore, digestion, diet, faeces, food chains producer, predator, prey, consumer,small intestine, large intestine, rectum, anus, faeces (poo), oesophagus (gullet), stomach | **Animals including humans:****Core:**toddler, teenager, elderly, growth, development, womb, baby, teenager, reproduction  **Extending:**adolescence, adolescent, puberty, teenager, reproduction, elderly  | **Animals including humans:****Core:** Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen,**Extending :**carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs and lifestyle |
|  | **Living things and their habitats**:**Core:** Living thing, Dead, Alive, Habitat, Micro habitat, Conditions, Energy, Food chain, Predator, Prey, Woodland, Ocean, Seashore, Rain Forest, Pond, Desert**Extending:** | C | **Living things and their habitats**:**Core:**Fish, Amphibians, Reptiles, Birds, mammals, environment, Habitatsalive, dead, movement, reproduction, sensitivity, nutrition, excretion, respiration, growth, habitat, localHabitat**Extending:**climate, change, danger, greenhouse, thermometer, test, carbon dioxide, results, graph, table environment, natural, man-made, vertebrate, invertebrate, arachnid, danger, adapt, threat | **Living things and their habitats**:**Core:**Mammals, insect, fish, bird, reptiles **Extending:**Invertebrates, vertebrates, amphibian, reproduction, offspring  | **Living things and their habitats:****Core:**Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering and non-flowering**Extending:**classification, kingdom, phylum, class, order, family, genus, species, taxonomy, opinion, similarities, differences, group, observations |
|  |  | **Light**:**Core:**Image, reflect, predict, light, white light, visible, colour **Extending:**concave, convex, opaque, translucent, transparent, spectrum, refractionLight source, energy, reflector, reflect, predict |  |  | **Light:****Core:** dark, light, darkness, reflect, straight line, torch**Extending:**Opaque, translucent, transparent, reflective |
| **Plants:****Core:** Leaves, Flowers (blossom), Petals, Fruit, Roots, Bulb, Seed, Trunk, Branches, Stem**Extending:** Deciduous, Evergreen trees | **Plants:****Core:** Seeds, Bulbs, Water, Light, Temperature, Growth, Mature plants, Germination, Survival.**Extending:** | **Plants:** Air, Light, Water, Nutrients, Soil, Reproduction, Transportation, Dispersal, Pollination, Flower, soil.Plants, growth, light, warmth, air, soil, water, investigate, seedlings, research, height, root, stem, leaves, flowers, petals, root, stem, shoots, leaves, buds, fruits, seeds, classify.**Core:****Extending:** |  |  |  |
| **Seasonal changes:****Core:** Summer, Spring, Autumn, Winter, Sun, Day, Moon, Night, Light, Dark**Extending:** |  |  |  | **Earth and space:** Earth, Sun, Moon, Axis, Rotation, Day, Night, Phases of the Moon, star, constellation, Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto, 'dwarf' planet, orbit, opinion/fact, accuracy, precision, scatter graphs, line graphs, eclipse, light, reflection, telescope, satellite, tide, mass, gravity**Core:****Extending:** |  |
|  |  | **Forces and magnets:**Force, push, pull,Forces, pushes, pulls, gravity, contact, magnet, magnetism, magnetic, non-magnetic, attract, repel, attraction, repulsion, poles, north, south**Core:****Extending:** |  | **Forces:** Earth, planets, Sun, solar system, Moon, celestial body, sphere/spherical, rotate/rotation, spin, night & day, orbit **Core:****Extending:** |  |
| **Materials:****Core:** Wood, Plastic, Glass, Metal, Stone, FabricHard, Soft, Bendy, Rough, Smooth, Shiny, Dull, Transparent, Opaque, Hard, Rigid, Waterproof**Extending:**  Non- waterproof, Absorbent, Non-Absorbent | **Uses of everyday materials:****Core:** Hard, Soft, Stretchy, Stiff, Shiny, Dull, Rough, Smooth, Bendy, Waterproof, Absorbent, Opaque, Transparent Brick, Paper, Fabrics, **Extending:** Squashing, Bending, Twisting, Stretching, Elastic, Foil. |  | **States of matter:**Solid, liquid, state, matter, particle, gas Solidifying, freezing, heating, melting, condensing, evaporating, particles, thermometer, temperature, degrees Celsiusprecipitation, state, liquid, gas, solid, ice, rain, clouds, vapourtranspiration, cycle, particle, temperature, change, evidence, water cycle, evaporation and condensation**Core:****Extending:** | **Properties and changes of materials:**Hardness, Solubility, Transparency, Conductivity, Magnetic, Filter, Evaporation, Dissolving, Mixing**Core:****Extending:** |  |
|  |  |  | **Sound:** Tone, listen, hear, ears, noise, loud, quiet, silent, vibrationsSound, transmit, medium, air, water, solid, vibrations, source, sound waves, particles, travel, volume, loudness, amplitude, pitch, soundwave, frequency**Core:****Extending:** |  |  |
|  |  | **Rocks:**Fossils, Soils, Pumice, Crystals, absorbent, Rock, Petrologist, man-made rocks, brick, tile, concrete, anthropic, igneous, sedimentary, metamorphic, permeable, impermeable, acid, erosion, marble, chalk, limestone, slate, granite, sandstone, fossil, ichthyosaur, plesiosaur, ammonite, sediment, minerals, soil, micro-organisms, organic matter, particles, sand, silt.**Core:****Extending:** |  |  |  |

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| **Working Scientifically** |

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| Year 1 and Year 2 ***During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content**** asking simple questions and recognising that they can be answered in different ways
* observing closely, using simple equipment  performing simple tests
* identifying and classifying
* using their observations and ideas to suggest answers to questions
* gathering and recording data to help in answering questions.
 | **Year 3 and Year 4** ***During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:*** * making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
* gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
* recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
* reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
* using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
* identifying differences, similarities or changes related to simple scientific ideas and processes
* using straightforward scientific evidence to answer questions or to support their findings.
 | **Year 5 and Year 6** ***During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:**** planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
* taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
* recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
* using test results to make predictions to set up further comparative and fair tests
* reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations
* identifying scientific evidence that has been used to support or refute ideas or arguments.
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