# Ashdene Primary School – Science Progression Map EYFS –Y6

| | |
|---|---|
| **Purpose of Study** | A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes. |
| **Aims** | The national curriculum for science aims to ensure that all pupils:<br>• develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics<br>• develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them<br>• are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.<br><br>At Ashdene we aim to regularly revisit and review scientific knowledge to support the development of children's long-term memory. Objectives in blue refer to prior knowledge children need to review before new information is introduced. Objectives in yellow are concepts that are being revisited through spaced practice to aid recall. |

| EYFS | | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
|---|---|---|---|---|---|---|---|
| **Working Scientifically - Teaching of these skills to be done through the topics below** | | | | | | | |
| | **Attainment Targets** | Asking simple questions and recognising that they can be answered in different ways.<br><br>Observing closely, using simple equipment.<br><br>Performing simple tests.<br><br>Identifying and classifying.<br><br>Using their observations and ideas to suggest answers to questions. | Asking simple questions and recognising that they can be answered in different ways.<br><br>Observing closely, using simple equipment.<br><br>Performing simple tests.<br><br>Identifying and classifying.<br><br>Using their observations and ideas to suggest answers to questions. | Asking relevant questions and using different types of scientific enquiries to answer them.<br><br>Setting up simple practical enquiries, comparative and fair tests.<br><br>Making systematic and careful observation.<br><br>Taking accurate measurements using standard units, using a range of equipment, | Asking relevant questions and using different types of scientific enquiries to answer them.<br><br>Setting up simple practical enquiries, comparative and fair tests.<br><br>Making systematic and careful observation.<br><br>Taking accurate measurements using standard units, using a range of equipment, | Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.<br><br>Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.<br><br>Recording data and results of increasing complexity using | Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.<br><br>Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.<br><br>Recording data and results of increasing complexity using |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Gathering and recording data to help in answering questions. | Gathering and recording data to help in answering questions. | including thermometers and data loggers.<br><br>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.<br><br>Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.<br><br>Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.<br><br>Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.<br><br>Identifying differences, similarities or changes related to simple scientific ideas and processes.<br><br>Using straightforward scientific evidence to answer questions or to support their findings. | including thermometers and data loggers.<br><br>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.<br><br>Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.<br><br>Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.<br><br>Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.<br><br>Identifying differences, similarities or changes related to simple scientific ideas and processes.<br><br>Using straightforward scientific evidence to answer questions or to support their findings. | scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.<br><br>Using test results to make predictions to set up further comparative and fair tests.<br><br>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.<br><br>Identifying scientific evidence that has been used to support or refute ideas or arguments. | scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.<br>Using test results to make predictions to set up further comparative and fair tests.<br><br>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.<br><br>Identifying scientific evidence that has been used to support or refute ideas or arguments. |

# Ashdene Primary School

*passionate about learning*

## Animals including humans

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ELG**<br><br>Explore the natural world around them, making observations and drawing pictures of animals<br><br>. | 1 | Identify, name, draw and label the basic parts of the human body. | Review common types of animals including fish, amphibians, reptiles, birds and mammals<br>Review how animals change e.g. chick to hen.<br>Explore how animals have offspring that turn into adults. | Review the basic needs of animals for survival (water, food, air).<br>Identify that animals, including humans cannot make their own food and need to get nutrition from what they eat. | Review that humans and animals get their nutrition from what they eat.<br>Review the importance of eating the right amount of different types of food.<br>Describe the simple functions of the basic parts of the digestive system in humans - *teeth, oesophagus, stomach, small/large intestines, rectum.* | Review role of skeleton as support/protection for the body.<br>Review major parts of the human skeleton.<br>Review terms vertebrate and invertebrate.<br>Review that animals, including humans, have offspring, which grow into adults.<br>Describe the changes as humans develop to old age - find out and compare gestation periods of a range of animals including humans. | Review the names of the key parts of the digestive system.<br>Review names of the different types of teeth and their functions.<br>Identify the components of blood and describe their functions. Name and describe the different blood vessels and their functions. |
| | 2 | Review names of the basic parts of the human body.<br>Identify which part of the body is associated with each sense. | Review basic parts of the human body and the senses associated.<br>Review how animals have offspring that turn into adults.<br>Understand that humans are animals and that we too have offspring that turn into adults.<br>Explore how babies change to toddlers, to teenagers, adults, then elderly. | Review that food is a basic need for animals, including humans, to survive and that they cannot make their own food so get their nutrition from what they eat.<br>Review the importance of eating the right amount of different types of food.<br>Identify that animals, including humans, need the right types and amount of nutrition. Look at food groups and how to eat a balanced diet. | Review the names of the key parts of the digestive system.<br>Describe the simple functions of the basic parts of the digestive system in humans | Review names of the different types of teeth and their functions.<br>Review gestation periods in humans and animals.<br>Describe the changes as humans develop to old age - Investigate feotal development in humans. | Review the different components of blood and their functions. Review the different types of blood vessels and their functions.<br>Explore the structure and function of the human heart. |
| | 3 | Review names of the basic parts of the human body. | Review how animals including humans have offspring that turn into adults. | Review basic human body parts and the senses associated. | Review the names of the key parts of the digestive system. | Review the importance of eating the right amount of different types of food. | Review the main parts of the digestive system and their functions. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Review which part of the body is associated with each sense.<br>Carry out investigations to explore the senses. | Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). | Identify that humans and some other animals have skeletons to support/protect their body.<br>Introduce vertebrates and invertebrate. | Identify the different types of teeth in humans and their simple functions - *incisors, canines, pre-molars, molars, wisdom.* | Review stages of feotal development.<br>Describe the changes as humans develop to old age - Recognise and explore key milestones in baby and child development. | Review the different components of blood and their functions.<br>Review the different types of blood vessels and their functions.<br>Identify and name the main parts of the human circulatory system. |
| | 4 | Review names of animals covered in EYFS.<br>Identify and name a variety of common animals, grouping them into fish, amphibians, reptiles, birds and mammals. | Review the basic needs of animals including humans for survival.<br>Understand that we need to eat the right amount of different types of food. | Review the role of the skeleton as support/protection for the body.<br>Review vertebrate and invertebrate.<br>Identify that humans and some other animals have skeletons to support/protect their body. Look at human skeletons - identify bones and their purposes. | Review names of the different types of teeth and their functions.<br>Identify the different types of teeth in humans and their simple functions - investigation to show how to keep teeth healthy. | Review key milestones during baby and child development.<br>Describe the changes as humans develop to old age - Identify and understand the key changes that happen in the human body during puberty. Recognise those changes that are gender specific. | Review that nutrients come from the food we eat.<br>Review carnivores, herbivores and omnivores and how we can tell an animal's diet by their teeth.<br>Describe the ways in which nutrients and water are transported within animals, including humans. |
| | 5 | Review grouping animals into fish, amphibians, reptiles, birds and mammals.<br>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets. | Review the basic needs of animals including humans to survive.<br>Review how we need to eat the right amount of different types of food.<br>Investigate the importance of human exercise. | Review role of skeleton as support/protection for the body.<br>Review major parts of the human skeleton.<br>Review terms vertebrate and invertebrate.<br>Look at animal skeletons. Compare animals that are vertebrate and invertebrate. | Review grouping animals into fish, amphibians, reptiles, birds and mammals.<br>Review carnivores, herbivores and omnivores.<br>Investigate animal teeth and how the types of teeth can tell you about their diet. | Review changes that happen to the boy during puberty.<br>Describe the changes as humans develop to old age - Identify physical and mental changes that happen from adulthood to old age. | Review the different food groups and the importance to eat a balanced diet.<br>Recognise the impact of diet, exercise and lifestyle on the way our bodies function. |
| | 6 | Review the grouping of different animals and describe their structure.<br>Identify and name a variety of common animals that are carnivores, herbivores and omnivores. Group | Review how humans need to eat the right amount of different types of food and how important exercise is to stay healthy.<br>Investigate the importance of good | Review role of skeleton to support and protect the body.<br>Identify that humans and some other animals have muscles and look at how they help with movement. | Review carnivores, herbivores and omnivores and how we can tell an animal's diet by their teeth.<br>Construct and interpret a variety of food chains, | Review physical and mental changes that happen from adulthood to old age.<br><br>Review the stages of development from feotus to old age in humans. | Review how diet, exercise and lifestyle can impact how the body functions.<br>Identify how drugs and alcohol impact on the way the human body functions. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | animals into these three categories. | hygiene to keep the body healthy. | | identifying producers, predators and prey. | Review what a life cycle is - previously looked at lifecycle of a plant. Describe the changes as humans develop to old age - Identify, order and explain the 6 stages in a human life cycle. | |
| | Vocabulary | **fish, reptiles, mammals, birds, amphibians herbivore, omnivore, carnivore, leg, arm, elbow, head, ear, nose, neck, face, eyes, ears, hair, mouth, teeth, back, wings, beak** | **survival, water, air, food, adult, baby, offspring, kitten, calf, puppy, exercise, hygiene, reproduction, toddler, child, teenager** | **nutrition, carbohydrates, protein, fibre, fat, vitamins, minerals, water, skeletons, contract, relax, tendons, joints, vertebrate, invertebrate, movement, muscles, bones, skull.** | **mouth, tongue, teeth, oesophagus, stomach, small intestine, large intestine, herbivore, carnivore, canine, incisor, molar, digestion, producer, predator, prey** | **feotus, embryo, womb, gestation, baby, toddler, teenager, elderly, growth, development, puberty, adulthood, gestation.** | **Circulatory, Heart, Blood Vessels, Veins, Arteries, Oxygenated, Deoxygenated, Valve, Exercise, Respiration, diet, drugs, lifestyle, nutrients, transportation** |
| **Plants** | | | | | | | |
| **ELG**<br><br>Explore the natural world around them, making observations and drawing pictures of plants | 1 | Review basic parts of a plant (flower, petal, leaf, stem, roots<br>Identify and describe the basic structure of a variety of common flowering plants - *children to plant seeds/beans to observe growth throughout topic.* | Review common structure of a plant<br>Set up investigation to observe how seeds and bulbs grow into mature plants. | Review basic structure of a flowering plant.<br>Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. | [redacted] | | |
| | 2 | Review basic parts of a plant (flower, petal, leaf, stem, roots<br>Identify and name a variety of common garden plants. | Review common structure of a plant<br>Observe and describe how seeds and bulbs grow into mature plants. | Review how plants need water, light and a suitable temperature to grow and stay healthy.<br>Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant - carry out investigation to observe | | | |

| | | | | |
|---|---|---|---|---|
| | | | | these requirements showing what happens if they are not all fulfilled. |
| | 3 | Review names of common garden plants.<br>Identify and name a variety of common wild plants. | Review how seeds and bulbs grow into mature plants.<br>Set up investigation to find out that plants need water in order to grow. | Review how plants need water, light and a suitable temperature to grow and stay healthy.<br>Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant - review results from investigation. |
| | 4 | Review names of common wild plants.<br>Identify and name common trees including deciduous and evergreen. | Review how seeds and bulbs grow into mature plants.<br>Observe/describe how plants need water in order to grow.<br>Set up investigation to show that plants need light in order to grow and stay healthy. | Review how plants need water to survive.<br>Review the parts and functions of a flowering plant.<br>Investigate the way in which water is transported within plants. |
| | 5 | Review names of common plant and trees including deciduous and evergreen.<br>Identify and describe the basic structure of a variety of common flowering plants, | Review how plants need light and water in order to grow and stay healthy.<br>Investigate the impact of temperature on plants growth and health. | Review that seeds and bulbs grow into mature plants.<br>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. |
| | 6 | Review names of common plant and trees including deciduous and evergreen.<br>Review the basic structure of common flowering plants. | Review the common structure of a plant.<br>Review how seeds and bulbs grow into mature plants.<br>Describe and explain what plants need in order to grow and stay healthy. | Review the life cycle of a flowering plant.<br>Explore methods of seed dispersal. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Observe changes that have happened to seeds/beans planted in week 1. | | | | | |
| | Vocabulary | **deciduous, evergreen trees, leaves, flowers (blossom), petals, fruit, roots, bulb, seed, trunk, branches, stem, growing, habitat, buds** | **seeds, bulbs, water, light, temperature, growth, survival, reproduction, germination, environment** | **roots, stem, trunk, leaves, flowers, air, light, water, nutrients, soil, reproduction, transportation, dispersal, pollination, flower, life cycle, pollination, seed formation, support** | | | |
| **Living things and their habitats** | | | | | | | |
| | 1 | | Explore the differences between things that are living and things that are dead. | Review the differences between things that are living/ dead/ have never been alive.<br>Recognise the characteristics of a living thing - movement, respiration, sensitivity, growth, reproduction, excretion, nutrition (MRS GREN). | | Review how plants need water to survive.<br>Review the parts and functions of a flowering plant.<br>Review names of common plants and animals.<br>Review the characteristics of a living thing (MRS GREN)<br>Review term reproduction linked to plants.<br>Describe the life process of reproduction in plants. | |
| | 2 | | Review that animals live in a home that is near their food.<br>Study local area and identifying and naming the plants and animals | Review characteristics of living things (MRS GREN).<br>Review names of common plants and animals. | | Review vertebrate and invertebrate.<br>Review term reproduction linked to plants. | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | and the habitat they live in. | Recognise that living things can be grouped in a variety of ways. Vertebrate/invertebrate. Fish/ amphibian/ reptile/ mammal/ bird. | | Describe the life process of reproduction in some animals. | |
| | 3 | | Review that animals live in a home that is near their food. Look at microhabitats and identify and name the plants and animals that live in them. | Review how living things can be grouped in a variety of ways. Review names of common plants and animals. Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment | | Review stages of the human life cycle. Review names of groups of common animals - mammal, amphibian, insect and bird are Investigate the life cycles of common mammal, amphibians, insects and birds. | |
| | 4 | | Review the names of plants and animals that live in microhabitats. Explore larger habitats from around the world looking at the plants and animals that live in them. | Review how living things can be grouped in different ways. Review how to use a classification key to identify and group living things. Review names of common plants and animals. Children to design their own classification keys to identify and group living things. | | Review the life cycles of common mammals, amphibians, insects and birds. Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird | |
| | 5 | | Review the names of plants and animals that live in different habitats and microhabitats. Describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other by considering the | Review that most living things live in habitats to which they are suited and that different habitats provide for the basic needs of the living thing. Recognise that environments can change and that this can sometimes pose dangers to living things - | | Review what a classification key is and how these can be used to group and identify living things. Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | adaptations of animals, and how living things in a habitat depend on each other. | investigate natural changes e.g. seasons. | | differences, including microorganisms, plants and animals | |
| | 6 | | Review the basic needs of animals including humans for survival.<br>Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food. | Review that living things live in habitats that provide their basic needs.<br>Review that environments can change.<br>Recognise that environments can change and that this can sometimes pose dangers to living things - investigate human changes and how these can be both positive and negative (e.g. protecting endangered species/ deforestation). | | Review what a classification key is and how these can be used to group and identify living things.<br>Give reasons for classifying plants and animals based on specific characteristics. | |
| | Vocabulary | | **living, dead, alive, habitat, micro-habitat, energy, food chain, predator, prey, food source, woodland, seashore, ocean, rainforest, environment.** | **vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, snails, slugs, worms, spiders, insects, environment, habitats, classification, deforestation.** | | **mammal, reproduction, insect, amphibian, bird, offspring, life-cycle, environment, classification, characteristics, vertebrates, invertebrates, micro-organisms, amphibians, reptiles, birds, mammals, insects** | |
| **Materials** | | | | | | | |
| | 1 | Everyday materials | Everyday materials and their uses | Rocks and soil | States of matter | Properties and changes of materials | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. | Review names of everyday materials including wood, plastic, glass, metal, water, and rock.<br>Review the properties of everyday materials by comparing and grouping. | Review rock as an everyday material - look at its properties and everyday uses.<br>Introduce the idea that the earth is made up of many layers including rocks and soil.<br>Introduce sedimentary, metamorphic and igneous rocks. Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties | Review appearance and simple physical properties of sedimentary, metamorphic and igneous rocks.<br>Review names and types of everyday materials, their properties and uses.<br>Compare and group materials together, according to whether they are solids or liquids - define the properties of a solid and liquid. | Review how the Earth is made of many layers including rocks and soil.<br>Review appearance and simple physical properties of sedimentary, metamorphic and igneous rocks.<br>Review properties of everyday materials.<br>Review conductors and insulators.<br>Review what a magnet is and the force<br>Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. | |
| | 2 | Review names of everyday materials.<br>Distinguish between an object and the material from which it is made by naming objects and identifying the materials they are made from. | Review the properties of everyday materials.<br>Identify and compare common materials and their uses. | Review appearance and simple physical properties of sedimentary, metamorphic and igneous rocks.<br>Look at how sedimentary, metamorphic and igneous rocks are formed. | Review properties of a solid and liquid and group materials into categories.<br>Investigate gasses - what is a gas, what are the properties of a gas? | Review properties of everyday materials.<br>Review common uses for everyday materials.<br>Review why certain materials that are insulator/conductors are selected for specific uses.<br>Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 3 | Review names of common objects and the types of materials they are made from.<br>Describe the simple physical properties of a variety of everyday materials. | Review the uses of everyday materials.<br>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses - focus on *absorbency.* | Review appearance and simple physical properties of sedimentary, metamorphic and igneous rocks.<br>Introduce terms permeable and impermeable and carry out investigations to find which rocks can be classified into which group. | Review properties of a solid, liquid and gas.<br>Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) | Review process of evaporation.<br>Know that some materials will **dissolve** in liquid to form a solution.<br>Investigate how to recover a substance from a solution using sieving, filtering or evaporation. | |
| | 4 | Review the physical properties of a variety of everyday materials.<br>To describe the simple physical properties of a variety of everyday materials by testing different objects. | Review materials that were absorbent and explain their common uses.<br>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses - *waterproof.* | Review appearance and simple physical properties of sedimentary, metamorphic and igneous rocks.<br>Review how different materials are suited to different uses.<br>Look at common rocks and classify into the three different types.<br>Look at common uses of these rocks and why the type of rock is suitable for its use. | Review properties of a solid, liquid and gas.<br>Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) - look at how some changes of state are reversible and some are irreversible. | Revisit what is a solid, liquid and gas.<br>Revisit how to separate a mixture using filtering, sieving or evaporating.<br>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating | |
| | 5 | Review the physical properties of a variety of everyday materials.<br>Investigate which material would be best to make different objects e.g. an umbrella. | Review materials that were waterproof and describe their common uses.<br>Investigate how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. | Review how the different types of rocks are formed.<br>Look at how sedimentary rock is formed in layers.<br>Describe in simple terms how fossils are formed when things that have lived are trapped within rocks.<br>*Link to Mary Anning as a famous fossil hunter.* | Review how some materials can change state by being heated or cooled.<br>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. | Review changes of state and reversible changes.<br>Review what happens when you dissolve/mix.<br>Demonstrate that dissolving and mixing are changes of state and are reversible changes. | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 6 | Review the physical properties of a variety of everyday materials.<br>Compare and group together a variety of everyday materials on the basis of their simple physical properties. | Review how the shapes of solid objects can be changed.<br>Find out about people who have developed new materials. *E.g. John Dunlop, John McAdam, Charles Macintosh.* | Review how the Earth is made of many layers including rocks and soil.<br>Look at how soil forms the top layer of the Earth.<br>Recognise that soils are made from rocks and organic matter.<br>Look at the types of soil and their properties. (Sandy, clay, loam) | Review parts of the water cycle.<br>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature - carry out investigation to demonstrate different stages of the water cycle. | Review changes of state and reversible/irreversible changes.<br>Investigate/observe how some changes result in the formation of new materials, and that this kind of change irreversible, including changes associated with burning and the action of acid on bicarbonate of soda. | |
| | Vocabulary | **material, wood, rock, wood, plastic, glass, paper, water, metal, rock, hard, soft, stretchy, stiff, shiny, dull, bendy, rough, smooth, waterproof, absorbent, opaque, brick, fabric, elastic, foil** | **material, wood, plastic, metal, glass, brick, rock, paper, cardboard, squashing, bending, twisting, stretching, properties, suitable, unsuitable** | **fossils, soils, sandstone, granite, marble, pumice, crystals, absorbent, sedimentary, igneous, metamorphic, permeable, impermeable, sandy, clay, loam.** | **solid, liquid, gas, heat, cool, state, Celsius, evaporation, condensation, particles, temperature, freezing, heating** | **hardness, solubility, transparency, conductivity, magnetic, filter, evaporation, dissolving, mixing, thermal, substance, solution, separating, reversible, irreversible** | |
| **Light and space** | | | | | | | |
| | 1 | Seasonal change<br>***Topic to be covered across the school year and not taught in one half term.**<br><br>Review names of seasons and whether the temperature is hot or cold. | | Light<br>Review how daylight comes from the sun.<br>Review how it is light in the daytime and dark at night.<br>Understand that light comes from a light source (e.g. the sun).<br>Recognise that they need light in order to see | Earth and Space<br>Review the sun being a light source and that it is dangerous to look directly at it.<br>Describe the Earth and sun as spherical bodies.<br>Use the idea of the Earth's rotation to explain night and day. | | Light<br>Review that light comes from a light source and we need it in order to see. Review dangers of staring directly at the sun.<br>Review that darkness is the absence of light.<br>Recognise that light appears to travel in straight lines |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | things and that dark is the absence of light. | | | |
| | 2 | Review names of the different seasons and whether the temperature is hot or cold.<br>To observe and describe weather associated with the seasons by observing the weather in autumn.<br>*Look at animals, trees, clothes we wear.*<br>Observe how day length varies over the course of a year depending on the season. | | Review the sun as a source of light.<br>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. | Review that the Earth's rotation in 24 hours is what causes day and night.<br>Review how that shadows are formed when the light from a light source is blocked.<br>Use the idea of the Earth's rotation to explain night and day and the apparent movement of the sun across the sky - shadow investigation. | | Review that light is reflected from different surfaces.<br>Review that light travels in straight lines.<br>Review that light is needed in order to see.<br>Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. |
| | 3 | Review weather associated with autumn and the length of an autumn day.<br>To observe and describe weather associated with the seasons by observing the weather in winter.<br>*Look at animals, trees, clothes we wear.*<br>Observe how day length varies over the course of a year depending on the season. | | Review that light is needed in order to see and that darkness is the absence of light.<br>Introduce the terms opaque, translucent and transparent.<br>Investigate how different materials allow different amounts of light to pass through them. | Review work on seasonal change and how the weather and length of the day are different depending on the time of the year.<br>Describe the movement of the Earth relative to the sun. | | Review that we need light in order to see and that objects are seen because they reflect light into the eye.<br>Review that the Earth's rotation in 24 hours is what causes day and night. Review how the Earth moves relative to the sun.<br>Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes |
| | 4 | Review weather associated with winter and the length of a winter day.<br>To observe and describe weather associated with the seasons by | | Review that light is needed in order to see and that darkness is the absence of light.<br>Review that an opaque object does not let light pass through. | Review how the Earth moves relative to the sun.<br>Look at the planets in our solar system and how they orbit around the sun. | | Review how the moon orbits the Earth in one month.<br>Review that shadows are formed when a light source is blocked by an opaque object. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | observing the weather in spring.<br>*Look at animals, trees, clothes we wear.*<br>Observe how day length varies over the course of a year depending on the season. | | Recognise that shadows are formed when the light from a light source is blocked by an opaque object | | | Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. |
| | 5 | Review weather associated with spring and the length of a spring day.<br>To observe and describe weather associated with the seasons by observing the weather in summer.<br>*Look at animals, trees, clothes we wear.*<br>Observe how day length varies over the course of a year depending on the season. | | Review that shadows are formed when light from a light source is blocked by an opaque object.<br>Find patterns in the way that the size of shadows change. | Review the planets in the solar system.<br>Review the sun and earth being spherical bodies.<br>Describe the moon as a spherical boy.<br>Describe the movement of the moon relevant to the Earth. | | Review the planets in the solar system.<br>Review that light travels in straight lines.<br>Understand that light can be bent when it is slowed down. (Refraction) |
| | 6 | Review weather associated with the four seasons observed over the course of the school year.<br>Describe the changes across the four seasons.<br>Describe how the length of the day varies depending on the season. | | Review that a light source is need in order to see.<br>Review terms opaque, translucent and transparent.<br>Review properties of everyday materials.<br>Investigate how light is reflected from surfaces. | Review how the moon orbits the Earth in one month.<br>Review how light is reflected from different surfaces.<br>Look at the phases of the moon.<br>Understand that the moon is not a source of light and that we can see it because it reflects light from the sun. | | Review that we see because light travels from a light source or light sources to objects that then reflect light into our eyes.<br>Recognise the white light can be split into 7 rainbow colours - the colours of the spectrum merge to make visible light. |
| | Vocabulary | **summer, spring, autumn, winter, sun, day, moon, night, light, dark, weather** | | **light, shadows, mirror, reflective, dark, reflection, light source** | **earth, sun, moon, axis, rotation, day, night, phases of the moon, star, constellation, day, night, Mercury, Venus, Earth, Mars, Jupiter,** | | **refraction, reflection, light, spectrum, rainbow, colour, light source** |

# Ashdene Primary School

*passionate about learning*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | **Saturn, Uranus, orbit, solar system** | | |

## Forces

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1 | | | **Forces and magnets** | | Forces | |
| | | | | Understand a force as a push or pull.<br>Investigate pushes and pulls and how they make an object move. | | Review what a force is.<br>Review that some forces need contact and others can act from a distance.<br>Review magnets as having two poles.<br>Review that magnets create two forces - attract and repel.<br>Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object | |
| | 2 | | | Review a force as a push or pull.<br>Introduce term friction.<br>Compare how things move on different surfaces depending on the amount of friction created. | | Review work on aerodynamics from y4 F1 topic.<br>Identify the effects of air resistance between moving surfaces. | |
| | 3 | | | Notice that some forces need contact between two objects, but magnetic forces can act at a distance | | Review concept of air resistance and what happens when this is greater/smaller.<br>Identify the effects of water resistance between moving surfaces | |
| | 4 | | | Review a force as a push or a pull. | | Review concept of friction | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | Introduce magnets and observe the forces they create.<br>Observe how magnets attract or repel each other.<br>Describe magnets as having two poles.<br>Predict whether two magnets will attract or repel each other, depending on which poles are facing. | | Identify the effect of friction between moving surfaces. | |
| | 5 | | Review magnets as having two poles.<br>Review that magnets create two forces - attract and repel.<br>Review properties of everyday materials.<br>Observe how magnets attract or repel some materials and not others. | | Review a force as a push or pull to make something move.<br>Investigate levers and pulleys and understand that they allow a smaller force to have a greater effect. | |
| | 6 | | Review magnets as having two poles.<br>Review that magnets create two forces - attract and repel.<br>Review properties of everyday materials.<br>Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials | | Review how levers and pulleys work and allow a smaller force to have a greater effect.<br>Investigate how gears work and how they too allow a smaller force to have a greater effect. | |
| | Vocabulary | | **magnetic, force, contact, attract, repel, friction, poles, push, pull, surface** | | **air resistance, water resistance, friction, movement, gravity, newton, leavers, gears, pulleys, Earth** | |

# Electricity

| | | | | | |
|---|---|---|---|---|---|
| | 1 | | Identify common appliances that run on electricity. Look at the difference between mains and battery powered appliances. Look at how to keep safe around electricity. | | Review how levers and pulleys work and allow a smaller force to have a greater effect. Review simple parts of a series circuit including cells, wires, bulbs, switches and buzzers. Review that a circuit needs to be complete in order for the bulb to light/ buzzer to sound. Review insulators and conductors. Explore what electricity is and how it is generated. |
| | 2 | | Review the difference between mains and battery power. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers | | Review simple parts of a series circuit and how to make a complete circuit. Use recognised symbols when representing a simple circuit in a diagram. |
| | 3 | | Review how to make a simple series circuit. Review names of electrical components. Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery | | Review basic parts of a circuit and the related circuit symbols. Explore what a cell is and how it works. |
| | 4 | | Review names and properties of everyday materials. Review electrical safety. | | Review circuit symbols. Review how switches work. Introduce term voltage. |

| | | | | | |
|---|---|---|---|---|---|
| | | | Recognise some common conductors and insulators, and associate metals with being good conductors.<br>Look at everyday uses of conductors and insulators and consider why these materials are used. E.g. plastic around a plug. | | Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit<br>Investigate variations in components functions changing the brightness of bulbs and loudness of buzzers. |
| | 5 | | Review how to make a simple series circuit and that it needs to be complete for the bulb to light.<br>Review conductors and insulators.<br>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit | | Review circuit symbols.<br>Review how the number/voltage of cells can change the brightness/volume.<br>Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers.<br>Investigate the impact of changing the position of the on/off switch. |
| | 6 | | Review that a switch opens and closes a circuit.<br>Investigate different types of switches depend on the purpose e.g. light switch, safety switch for lawn mower. | | Review properties of a solid, liquid and gas - reversible and irreversible changes.<br>Review how the number/voltage of cells can change the brightness/volume.<br>Review circuit symbols<br>Use knowledge of how to change the function of components by changing the position of a switch and voltage/number of cells to design and make their own product e.g. burglar alarm, traffic lights. |

| | | | | | |
|---|---|---|---|---|---|
| | Vocabulary | | **cells, wires, bulbs, switches, buzzers, battery, circuit, series, conductors, insulators, appliance** | | **cells, wires, bulbs, switches, buzzers, battery, circuit, series, conductors, insulators, amps, volts, cell, components** |
| **Sound** | | | | | |
| | 1 | | Identify how sounds are made, associating some of them with something vibrating | | |
| | 2 | | Review how sounds are made and how they are associated with something vibrating. Recognise that vibrations from sounds travel through a medium to the ear. Look at how sounds travel through the ear. | | |
| | 3 | | Review term pitch from music curriculum. Find patterns between the pitch of a sound and features of the object that produced it | | |
| | 4 | | Review the term volume from the music curriculum. Find patterns between the volume of a sound and the strength of the vibrations that produced it | | |
| | 5 | | Review volume and how this relates the strength of the vibrations. Investigate how to muffle a sound. (Use sound metres to take measurements). | | |

| | | | | |
|---|---|---|---|---|
| | 6 | | Review volume and how this relates the strength of the vibrations.<br>Recognise that sounds get fainter as the distance from the sound source increases. | |
| | Vocab | | **volume, vibration, wave, pitch, tone, speaker** | |
| **Evolution and inheritance** | | | | |
| | 1 | | | Review how sounds are made and how they are associated with something vibrating.<br>Review volume and pitch.<br>Review fossils and how they are made.<br>Review Mary Anning and the discoveries she made.<br>Investigate how fossils provide information about living things that inhabited the Earth millions of years ago. |
| | 2 | | | Review offspring and changes over time.<br>Review reproduction of plants and animals.<br>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. |
| | 3 | | | Review how habitats provide basic needs for plants and animals. |

| | | | |
|---|---|---|---|
| | | | Review basic needs of a living thing.<br>Recognise that living things have changed over time.<br>Identify how animals have adapted to suit their environment in different ways |
| | 4 | | Review the term adaptation and revisit how animals have adapted to their environments.<br>Recognise that living things have changed over time.<br>Identify how plants have adapted to suit their environment in different ways. |
| | 5 | | Review term adaptation and how plants and animals have adapted to their environment.<br>Understand the term natural selection and investigate how traits give them a survival advantage. Look at work by Charles Darwin on finches' beaks. |
| | 6 | | Review ideas of adaptation and natural selection.<br>Identify that adaptation by animals and plants to their environment may lead to evolution - look at how giraffes got their long necks.<br>Look at work of Wallace and Darwin. |

| | | | |
|---|---|---|---|
| | Vocabulary | | fossils, offspring, adaptation, evolution, characteristics, reproduction, genetics, variation, mutations, natural selection, Darwin, Wallace, Anning |