

**When all components are taught, practised, processed and transferred to long term memory, our children will be able to:**

- **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**

#### **Year Four**

**Investigate how sound travels and the impact of distance on sound.**

**Learners will experiment how sound travels through different materials and states of matter.**

**Investigate the relationship between vibration and volume.**

**Children will learn about aspects of sound when using instruments, singing and listening to music.**

**Children will link to oracy lessons and learn about volume of speaking when performing to an audience.**

#### **Year Three**

**Children will learn about aspects of sound when using instruments, singing and listening to music.**

**Children will link to oracy lessons and learn about volume of speaking when performing to an audience.**

#### **Year Two**

**Children will learn about aspects of sound when using instruments, singing and listening to music.**

**Children will link to oracy lessons and learn about volume of speaking when performing to an audience.**

#### **Year One**

**In Animals including Humans, pupils will learn about sounds when considering senses.**

**Children will learn about aspects of sound when using instruments, singing and listening to music.**

**Children will link to oracy lessons and learn about volume of speaking when performing to an audience.**

#### **EYFS**

**Explore music, move to different songs, play instruments with increasing control and listen with increased attention to sounds.**

**When all components are taught, practised, processed and transferred to long term memory, our children will be able to:**

- **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.**

#### **Year Four**

**In English, learn about Mary Anning, her discoveries and how she became internationally known for identification of some dinosaurs (e.g. Ichthyosaur).**

#### **Year Three**

**Investigate different rocks and soils and group them by characteristics and appearance.**

**Look into what different kinds of rocks can be used for different purposes.**

**Describe in simple terms how fossils are formed when living things are trapped in rocks.**

**Begin to learn about Mary Anning and her studies.**

#### **EYFS**

**Daily opportunities to explore their environment discovering rocks, stones and soils and how they might look and feel in different seasons.**

**Children will create mud by mixing soil with water and observe changes as this dries out.**

**When all components are taught, practised, processed and transferred to long term memory, our children will be able to:**

- **Compare how things move on different surfaces**
- **Notice that some forces need contact between two objects, but magnetic forces can act at a distance**
- **Observe how magnets attract or repel each other and attract some materials and not others**
- **Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials**
  - **Describe magnets as having two poles**
- **Predict whether two magnets will attract or repel each other, depending on which poles are facing**

### **Year Three**

**Investigate how things move on different surfaces and compare findings.**

**Use magnets to investigate how magnetic forces can act over a distance and do not need contact for movement to happen.**

**Observe how magnets attract and repel each other and attract some materials but not others.**

**Compare and group materials on their magnetic properties.**

**Investigate magnetic poles and make a compass!**

### **EYFS**

**Learn how things might work using pulleys and levers.**

**Carry out investigations, both adult-led and independently, whilst considering floating and sinking.**

**Using investigative play, use magnets and tubes of iron filings to introduce and capture interest in magnetism.**

**When all components are taught, practised, processed and transferred to long term memory, our children will be able to:**

- **Identify common appliances that run on electricity**
- **Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers**
- **Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery**
- **Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit**
- **Recognise some common conductors and insulators, and associate metals with being good conductors.**

#### **Year Four**

**Learn about important scientists in the electrical field.**

**Discuss how to stay safe near electricity. Discuss power stations as a source of electricity.**

**Identify common household appliances that utilise electricity and construct a simple series circuit, labelling basic parts and recognising the need for a complete loop with a power source.**

**Investigate some common conductors and insulators and associate metals with being good conductors (identifying possible uses) .**

**Investigate how to increase the brightness of a bulb and whether a switch needs to be open or closed to complete a circuit.**

#### **EYFS**

**Discuss plugs and electrical safety. Use balloons to investigate static electricity.**

**Use iPads and torches to help with the notion that electricity does not have to come from a plug.**

**Teachers to model conservation of electricity and discuss energy saving ideas.**

#### **Whole School**

**Across the school, all children will learn about basic electrical safety and conservation through energy saving ideas.**

**Teachers will model good energy conservation and demonstrate saving electricity.**

**In assemblies, children will learn about saving energy.**

**When all components are taught, practised, processed and transferred to long term memory, our children will be able to:**

- ◆ **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**

### **Year Three**

**Learn what a light source is and give examples, recognising that they need light to see and that dark is when we have no light.**

**Learn about light and dark, reflection, opaque and transparency.**

**Learn that light from the sun can be harmful and describe ways to protect themselves.**

**Investigate how shadows are formed and explain the difference between a shadow and reflection.**

**Look for patterns in the way that shadows change.**

**Discuss light and shade when they grow plants and consider the importance of photosynthesis.**

### **Year Two**

**Discuss light and shade when they grow plants and consider the importance of photosynthesis. .**

### **Year One**

**When studying seasonal changes, the amount of daily light we experience is compared with differing seasonal periods.**

**Discuss light and shade when they grow plants and consider the importance of photosynthesis.**

### **EYFS**

**Discuss light when learning about festivals and celebrations (Diwali and fireworks).**

**Make observations about the sun and moon and children share their ideas.**

**Children to discuss the need for light when they grow plants.**

**When all components are taught, practised, processed and transferred to long term memory, our children will be able to:**

- **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**

#### **Year Four**

**Learn the basics of the digestive system and how it functions.**

**Experiment how bodily waste is formed.**

**Identify and compare different teeth in carnivores and herbivores, learning what damages teeth and how best to look after them.**

**Construct a variety of food chains looking at different organisms.**

#### **Year Three**

**Design a healthy meal finding out what nutrition can be gained from different food types.**

**Find out about and name different basic parts of a human skeleton.**

**Learn that some animals are vertebrate and others invertebrate.**

**Learn how muscles help the body.**

#### **Year Two**

**Investigate what animals need to stay alive.**

**Explain the importance of a healthy diet and exercise.**

**Match the young to its adult using images and create the life cycle of an insect following on from a bug hunt.**

#### **Year One**

**Start to use scientific vocabulary to describe a variety of animals.**

**Compare and group them by features and what they eat.**

**Talk about and compare the structure of animals and their features.**

**Identify the main parts of the of the human body and name the 5 senses.**

#### **EYFS**

**Identify some animals, describing them and identifying simple body parts.**

**Name a variety of mini-beasts, identify some farm animals and describe some of their features.**

**Sequence the life cycle of a butterfly and compare this with other animals.**

**When all components are taught, practised, processed and transferred to long term memory, our children will be able to:**

- **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.**
  - **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.**

#### **Year Four**

**Re-cap learning from Year 2 and build on that knowledge by considering states of matter.**

**Learn about solids, liquids and gases, and how those states can alter to either a reversible or irreversible change.**

**Group materials together according to their state and observe what may happen if a material is heated or cooled.**

**Consider the role played by condensation and evaporation in the water cycle.**

#### **Year Two**

**Explore a range of materials and consider their suitability for making a range of everyday objects.**

**Discover that the shape of some materials can change by squeezing, twisting, bending and stretching.**

**Perform a simple experiment to test the suitability of a material for a given purpose, gathering and recording data to assist in answering questions.**

#### **Year One**

**Identify and name a range of everyday materials, comparing and grouping them together based on simple physical properties.**

**Distinguish between an object and the material from which it is made.**

#### **EYFS**

**Feel, play with and discuss a range of materials.**

**Identify, match and sort materials as well as choosing a particular material for a set purpose.**

**When all components are taught, practised, processed and transferred to long term memory, our children will be able to:**

- **Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers**
- **Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant**
  - **Investigate the way in which water is transported within plants**
- **Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.**

#### **Year Four**

**Identify that plants are the bottom of each food chain.**

#### **Year Three**

**Learn more about what plants need to survive and the functions of the parts of flowering plants.**

**Review best growing conditions, seasonal plants and vegetables.**

**Dissect and identify part of a flowering plant.**

**Describe in more detail the requirements for growth and how this may vary from plant to plant.**

**Investigate how water is transported in plants and explore the role played by flowers in a plant life cycle.**

#### **Year Two**

**Learn that new plants come from seeds.**

**Match some seeds with their plants and describe where the seeds can be found.**

**Identify bulbs and how they also allow some plants to grow back a year later when conditions allow.**

**Investigate the effect of light and dark, water and temperature on growing plants.**

**Suggest the best environment to grow some plants.**

#### **Year One**

**Name a variety of common and wild plants which will be grouped according to features.**

**Have conversations about deciduous and evergreen trees, plants and seasonal vegetables.**

**Describe the basic structure of a variety of common flowering plants and trees.**

#### **EYFS**

**Plant seeds and observe over time how they grow.**

**Observe how some plants grow differently and talk about reasons for this.**

**Shopping roleplay where conversations will include vocabulary about fruit and vegetables, plants and flowers.**

**Learn about seasons, months and days of the week.**

**When all components are taught, practised, processed and transferred to long term memory, our children will be able to:**

- ♦ **Identify different seasons and seasonal patterns**
- ♦ **Recognise that they live on the Earth and that the Sun and the Moon play a significant role in day and night**
- ♦ **Children will start to talk about the planets and recognise some planet names**

### **Moving On...**

**Earth and Space topic is limited to Year 5 in the National Curriculum but we recognise that we need to make links to it earlier than Year 5 for our children's understanding to develop.**

**Conversations are had throughout school about the Sun, Moon and planets (shadows Year 3) and in various texts during reading sessions.**

**Children will learn in greater depth more information about the Sun, Moon and other planets in Year 5 and beyond.**

### **Years one to Four**

**Children will hold conversations with their peers and adults about seasonal changes, shadows, the existence of some planets and their names.**

**Children will learn about day and night in class discussions and assembly stories.**

### **Year One**

**During discussions in Seasonal Changes topic, the weather is considered.**

**Children learn that the length of daylight hours changes in different seasons and that some animals hibernate/migrate during winter months.**

### **EYFS**

**Learners will talk about days of the week and months of the year throughout EYFS.**

**The Sun and Moon are also discussed in a variety of situations and different texts.**

**When all components are taught, practised, processed and transferred to long term memory, our children will be able to:**

- **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**
- **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.**
  - **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.**

#### **Year Four**

**Group living things in a variety of ways according to different criteria e.g. vertebrate/invertebrate or flowering/non-flowering.**

**Children may choose to group according to physical characteristics or habitats.**

**Learners will be introduced to a classification key and use a series of specific questions to help classify a variety of living things.**

**Identify that habitats can change due to both normal and human interventions and that living things often adapt but changes often pose dangers to living things.**

#### **Year Two**

**Identify things that are living, dead or have never been alive.**

**Group things into categories and start to explain why a category has been chosen.**

**Identify what living things need to stay alive and be introduced to the term 'habitat'.**

**Children will identify and link living things to their best habitat and explain reasons why.**

**Investigate micro-habitats and identify a range of plants and animals that live there.**

**Describe how animals obtain their food from plants and other animals, using a basic food chain.**

#### **EYFS**

**Children explore a range of plants and animals, talking about what they are, where they come from and which groups they belong to e.g. fish or birds.**