

Science Curriculum

King Edwin Primary

Substantive & Disciplinary Knowledge



Year 1

| Year 1 | | | | |
|---|--|---|--|--|
| Biology | | | Chemistry | Physics |
| Animals, including Humans | Animals, including Humans | Plants | Everyday Materials | Seasonal Change |
| <ul style="list-style-type: none"> • Name common animals • Carnivores, etc | <ul style="list-style-type: none"> • Human body and senses | <ul style="list-style-type: none"> • Common plants • Plant structure | <ul style="list-style-type: none"> • Properties of materials • Grouping materials | <ul style="list-style-type: none"> • The four seasons • Seasonal weather |
| <ul style="list-style-type: none"> • Know how to classify a range of animals by amphibian, reptile, mammal, fish and birds • Know and classify animals by what they eat (carnivore, herbivore and omnivore) • Know how to sort by living and non living things | <ul style="list-style-type: none"> • Know the name of parts of the human body that can be seen • Know about the five senses. | <ul style="list-style-type: none"> • Know and name a variety of common wild and garden plants • Know and name the petals, stem, leaves and root of a plant • Know and name the roots, trunk, branches and leaves of a tree | <ul style="list-style-type: none"> • Know the name of the materials an object is made from • Know about the properties of everyday materials | <ul style="list-style-type: none"> • Name the seasons and know about the type of weather in each season |

Year 2

| Biology | | | Chemistry | |
|---|---|--|---|--|
| All living things and their habitats | Animals, including Humans | Plants | Everyday Materials | |
| <ul style="list-style-type: none"> • <i>Alive or dead</i> • <i>Habitats</i> • <i>Adaptations</i> • <i>Food chains</i> | <ul style="list-style-type: none"> • <i>Animal reproduction</i> • <i>Healthy living</i> • <i>Basic needs</i> | <ul style="list-style-type: none"> • <i>Plant and seed growth</i> • <i>Plant reproduction</i> • <i>Keeping plants healthy</i> | <ul style="list-style-type: none"> • <i>Identify different materials</i> • <i>Name everyday materials</i> • <i>Properties of materials</i> | <ul style="list-style-type: none"> • <i>Compare the use of different materials</i> • <i>Compare movement on different surfaces</i> |
| <ul style="list-style-type: none"> • Classify things by living, dead or never lived • Know how a specific habitat provides for the basic needs of things living there (plants and animals) • Match living things to their habitat • Name some different sources of food for animals • Know about and explain a simple food chain | <ul style="list-style-type: none"> • Know the basic stages in a life cycle for animals, (including humans) • Know why exercise, a balanced diet and good hygiene are important for humans | <ul style="list-style-type: none"> • Know and explain how seeds and bulbs grow into plants • Know what plants need in order to grow and stay healthy (water, light & suitable temperature) | <ul style="list-style-type: none"> • Know how materials can be changed by squashing, bending, twisting and stretching | <ul style="list-style-type: none"> • Know why a material might or might not be used for a specific job |

Year 3

| Year 3 | | | | | |
|--|--|--|--|---|--|
| Biology | | | Chemistry | Physics | |
| Animals, including humans | Plants | Plants | Rocks | Forces | Light |
| <ul style="list-style-type: none"> • <i>Skeleton and muscles</i> • <i>Nutrition</i> • <i>Exercise and health</i> | <ul style="list-style-type: none"> • <i>Plant life</i> • <i>Basic structure and functions</i> | <ul style="list-style-type: none"> • <i>Life cycle</i> • <i>Water transportation</i> | <ul style="list-style-type: none"> • <i>Fossil formation</i> • <i>Compare and group rocks</i> • <i>Soil</i> | <ul style="list-style-type: none"> • <i>Different Forces</i> • <i>Magnets</i> | <ul style="list-style-type: none"> • <i>Reflections</i> • <i>Shadows</i> |
| <ul style="list-style-type: none"> • Know about the importance of a nutritious, balanced diet • Know how nutrients, water and oxygen are transported within animals and humans • Know about the skeletal and muscular system of a human | <ul style="list-style-type: none"> • Know the function of different parts of flowering plants and trees | <ul style="list-style-type: none"> • Know how water is transported within plants • Know the plant life cycle, especially the importance of flowers | <ul style="list-style-type: none"> • Compare and group rocks based on their appearance and physical properties, giving reasons • Know how soil is made and how fossils are formed • Know about and explain the difference between sedimentary, metamorphic and igneous rock | <ul style="list-style-type: none"> • Know about and describe how objects move on different surfaces • Know how a simple pulley works and use to on to lift an object • Know how some forces require contact and some do not, giving examples • Know about and explain how magnets attract and repel Predict whether magnets will attract or repel and give a reason | <ul style="list-style-type: none"> • Know that dark is the absence of light • Know that light is needed in order to see and is reflected from a surface • Know and demonstrate how a shadow is formed and explain how a shadow changes shape • Know about the danger of direct sunlight and describe how to keep protected |

Year 4

| Biology | | Chemistry | Physics | |
|---|---|---|--|---|
| Animals, including humans | All living things and their habitats | States of Matter | Electricity | Sound |
| <ul style="list-style-type: none"> • Digestive system • Teeth • Food chains | <ul style="list-style-type: none"> • Grouping living things • Classification keys • Adaptation of living things | <ul style="list-style-type: none"> • Compare and group materials • Solids, liquids and gases • Changing state • Water cycle | <ul style="list-style-type: none"> • Uses of electricity • Simple circuits and switches • Conductors and insulators | <ul style="list-style-type: none"> • How sounds are made • Sound vibrations • Pitch and Volume |
| <ul style="list-style-type: none"> • Identify and name the parts of the human digestive system • Know the functions of the organs in the human digestive system • Identify and know the different types of human teeth • Know the functions of different human teeth • Use and construct food chains to identify producers, predators and prey | <ul style="list-style-type: none"> • Use classification keys to group, identify and name living things • Know how changes to an environment could endanger living things • Group materials based on their state of matter (solid, liquid or gas) | <ul style="list-style-type: none"> • Know the temperature at which materials change state • Know about and explore how some materials can change state • Know the part played by evaporation and condensation in the water cycle | <ul style="list-style-type: none"> • Identify and name appliances that require electricity to function • Construct a series circuit • Identify and name the components in a series circuit (including cells, wires, bulbs, switches and buzzers) • Predict and test whether a lamp will light within a circuit • Know the function of a switch • Know the difference between a conductor and an insulator; giving examples of each | <ul style="list-style-type: none"> • Know how sound is made, associating some of them with vibrating • Know how sound travels from a source to our ears • Know the correlation between pitch and the object producing a sound • Know the correlation between the volume of a sound and the strength of the vibrations that produced it • Know what happens to a sound as it travels away from its source |

Year 5

| Biology | | Chemistry | Physics | |
|---|--|--|--|--|
| All living things and their habitats | Animals, including humans | Properties and changes in materials | Forces | Earth and Space |
| <ul style="list-style-type: none"> • <i>Life cycles – plants and animals</i> • <i>Reproductive processes</i> • <i>Famous naturalists</i> | <ul style="list-style-type: none"> • <i>Changes as humans develop from birth to old age</i> | <ul style="list-style-type: none"> • <i>Compare properties of everyday materials</i> • <i>Soluble/ dissolving</i> • <i>Reversible and irreversible substances</i> | <ul style="list-style-type: none"> • <i>Gravity</i> • <i>Friction</i> • <i>Forces and motion of mechanical devices</i> | <ul style="list-style-type: none"> • <i>Movement of the Earth and the planets</i> • <i>Movement of the Moon</i> • <i>Night and day</i> |
| <ul style="list-style-type: none"> • Know the life cycle of different living things e.g. mammal, amphibian, insect and bird • Know the differences between different life cycles • Know the process of reproduction in plants • Know the process of reproduction in animals | <ul style="list-style-type: none"> • Create a timeline to indicate stages of growth in humans | <ul style="list-style-type: none"> • Compare and group materials based on their properties (e.g. hardness, solubility, transparency, conductivity, [electrical & thermal], and response to magnets • Know and explain how a material dissolves to form a solution • Know and show how to recover a substance from a solution • Know and demonstrate how some materials can be separated (e.g. through filtering, sieving and evaporating) • Know and demonstrate that some changes are reversible and some are not • Know how some changes result in the formation of a new material and that this is usually irreversible | <ul style="list-style-type: none"> • Know what gravity is and its impact on our lives • Identify and know the effect of air and water resistance • Identify and know the effect of friction • Explain how levers, pulleys and gears allow a smaller force to have a greater effect | <ul style="list-style-type: none"> • Know about and explain the movement of the Earth and other planets relative to the Sun • Know about and explain the movement of the Moon relative to the Earth • Know and demonstrate how night and day are created • Describe the Sun, Earth and Moon (using the term spherical) |

Year 6

| Biology | | | Physics | |
|--|--|---|---|--|
| Animals, including humans | All living things and their habitats | Evolution and Inheritance | Electricity | Light |
| <ul style="list-style-type: none"> • <i>The circulatory system</i> • <i>Water transportation</i> • <i>Impact of exercise on body</i> | <ul style="list-style-type: none"> • <i>Classification of living things and the reasons for it</i> | <ul style="list-style-type: none"> • <i>Identical and non identical off-spring</i> • <i>Fossil evidence and evolution</i> • <i>Adaptation and evolution</i> | <ul style="list-style-type: none"> • <i>Electrical components</i> • <i>Simple circuits</i> • <i>Fuses and voltage</i> | <ul style="list-style-type: none"> • <i>How light travels</i> • <i>Reflection</i> • <i>Ray models of light</i> |
| <ul style="list-style-type: none"> • Identify and name the main parts of the human circulatory system • Know the function of the heart, blood vessels and blood • Know the impact of diet, exercise, drugs and lifestyle on health • Know the ways in which nutrients and water are transported in animals, including humans | <ul style="list-style-type: none"> • Classify living things into broad groups according to observable characteristics and based on similarities and differences • Know how living things have been classified • Give reasons for classifying plants and animals in a specific way | <ul style="list-style-type: none"> • Know how the Earth and living things have changed over time • Know how fossils can be used to find out about the past • Know about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents) • Know how animals and plants are adapted to suit their environment • Link adaptation over time to evolution • Know about evolution and can explain what it is | <ul style="list-style-type: none"> • Compare and give reasons for why components work and do not work in a circuit • Draw circuit diagrams using correct symbols • Know how the number and voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer | <ul style="list-style-type: none"> • Know how light travels • Know and demonstrate how we see objects • Know why shadows have the same shape as the object that casts them • Know how simple optical instruments work e.g. periscope, telescope, binoculars, mirror, magnifying glass etc. |

Working Scientifically Progression

Key Concepts

Variables

Something in an enquiry that can be changed or controlled.

Validity

How accurate or correct the results of an enquiry are.

Design

How a scientific question was investigated

Reporting

How the findings of an enquiry are communicated to others

Enquiry Types

Comparative and Fair Testing

Pattern Seeking

Grouping and Classifying

Observations Over Time

Research using Secondary Sources

Working Scientifically Progression

Years 1 & 2

Know that we can ask questions about the world and that when we observe the world to answer these questions, this is science.

| Variables | Validity | Design | Reporting |
|-----------|----------|---|---|
| | | <p>Know that objects can be identified or sorted into groups based on their observable properties.</p> <p>Know that we can use magnifying glasses to observe objects closely.</p> <p>Know that we can test our questions to see if they are true.</p> | <p>Know that we can write down numbers and words or draw pictures to record what we find.</p> |

Working Scientifically Progression

Years 3 & 4

Know that we can ask questions and answer them by setting up scientific enquiries
Know how to make relevant predictions that will be tested in a scientific enquiry

| Variables | Validity | Design | Reporting |
|---|---|---|---|
| Know that in a fair test one thing is altered (independent variable) and one thing that may change as a result is measured (dependent variable) while all other conditions are kept the same. | <p>Know that scientific enquiries can suggest relationships, but that they do <u>not</u> prove whether a prediction is true.</p> <p>Know that scientific enquiries are limited by the accuracy of the measurements (and measuring equipment) and by the extent to which conditions can vary even.</p> <p>Know that repeating enquiries, measurements and taking measures to keep conditions as consistent as possible can improve an enquiry.</p> | <p>Know how to use a range of equipment to measure accurately, including thermometers, data loggers, rulers and stopwatches.</p> <p>Know that the conclusions of scientific enquiries can lead to further questions, where results can be clarified or extended to different contexts.</p> <p>Know that a theory is an explanation of observations that has been tested to some extent and that a hypothesis is an explanation that has not yet been tested, but that can be tested through a scientific enquiry.</p> | <p>Know how to draw bar charts, a neat table and a classification key.</p> <p>Know how to label a diagram using lines to connect information to the diagram and how to use a coloured key.</p> <p>Know how to show the relationship between an independent variable in a two-way table; and how to label specific results in a two-way table.</p> <p>Know – with structured guidance - how to write a simple scientific enquiry write-up including an introduction, a list of equipment, a numbered method, a detailing of results and a conclusion.</p> <p>Know that they can draw conclusions from the findings of other scientists.</p> <p>Know how to shorten a scientific enquiry write-up into a brief oral discussion of what was found in a scientific enquiry.</p> |

Working Scientifically Progression

Years 5 & 6

- Know that we can ask questions and answer them by setting up scientific enquiries
- Know how to make relevant predictions that will be tested in a scientific enquiry

| Variables | Validity | Design | Reporting |
|--|--|---|--|
| Know how to choose appropriate variables to test a hypothesis (e.g., plant height as a dependent variable when measuring effect of light on plant growth). | <p>Know how to identify conditions that were imperfectly controlled and can explain how these might affect results.</p> <p>Know how to accurately use further measuring devices, including digital and analogue scales, measuring cylinders and beakers, recognizing the relative accuracy of each device.</p> <p>Know how to evaluate the validity of the data collected and suggest improvements for future enquiries.</p> | Know how and when to repeat measurements, how to find an average of a set of measurements and how to recognize and remove outliers from a set of data, justifying the removal as a potential mis-measurement. | <p>Know how to independently write a simple scientific enquiry write-up including an introduction, a list of equipment, a numbered method, a detailing of results and a conclusion.</p> <p>Know how to present brief oral findings from an enquiry, speaking clearly and with confidence and using notes where necessary.</p> <p>Know examples of instances where scientific evidence has been used to support or refute ideas or arguments (e.g., fossil records as evidence of natural selection).</p> |

Opportunities to work scientifically

Year 1

| | Comparative and Fair Testing | Observations over time | Research using Secondary Sources | Grouping and Classifying | Pattern Seeking |
|----------------------------------|---|---|--|--|--|
| Seasonal Changes | | Changes in temperature throughout the year | | | Length of daylight throughout the year |
| Animals, including humans | | | Research animals that live in a particular habitat | Group/ classify animals according to what they eat | Height changes as we get older |
| Plants | | Changes to plants/ trees as they grow or in different seasons | | Identify local trees and plants | |
| Everyday Materials | Compare the suitability of everyday materials for a specific job, e.g., building a bridge | | | Identify different materials based on their properties | |

Opportunities to work scientifically

Year 2

| | Comparative and Fair Testing | Observations over time | Research using Secondary Sources | Grouping and Classifying | Pattern Seeking |
|---|--|----------------------------------|---|---|------------------------|
| Uses of everyday materials | Compare materials to see which is the most waterproof | | | Group different materials based on their properties | |
| Animals, including humans | | | Research different food groups and design a balanced menu | Identify the offspring of different animals | |
| Living things and their habitats | | | Research animals and how they adapt to their environment | Group animals based on their natural habitats | |
| Plants | Investigate which conditions plants need to grow | Change in plant growth over time | | Identify parts of a plant | |
| Forces (Introduction) | Investigate the effect of force on the speed an object moves | | | Group materials based on how they react to a force (e.g., stretchy) | |

Opportunities to work scientifically

Year 3

| | Comparative and Fair Testing | Observations over time | Research using Secondary Sources | Grouping and Classifying | Pattern Seeking |
|----------------------------------|---|--|--|---|--------------------------------|
| Rocks and soil | | | Research how fossils and different types of rocks are formed | Identify different rocks and the group they belong to | |
| Animals, including humans | | Observe the effect of excess sugar over time (based on egg shells) | Research animals to identify their animal group and habitat | Group/ classify and animal based on its group and species | |
| Plants | | Observe how water travels up the stem | Research different types of seed dispersal | | |
| Light | Compare materials based on reflectiveness | Shadow length throughout the day | | Group materials based on their opacity and transparency | Object size compared to shadow |
| Forces and magnets | Compare materials based on the amount of friction they generate | | | Group magnetic and non-magnetic materials | |

Opportunities to work scientifically

Year 4

| | Comparative and Fair Testing | Observations over time | Research using Secondary Sources | Grouping and Classifying | Pattern Seeking |
|---|---|--|---|---|--|
| Electricity | Determine which materials are electrical conductors or insulators | | | Classify/ group materials into electrical conductors or insulators | |
| Animals, including humans | | | Research the different body parts involved in digestion | Classify plants/ animals into either producer, consumer or predator | |
| Living things and their habitats | | | Research the effect of climate change on animals around the world | Classify animals based on their observable characteristics | |
| States of Matter | | Measure temperature changes in water over time | Research the water cycle and how it works | Identify solids, liquids or gases | |
| Sound | The affect of distance from the source on volume | | | | Compare how length and width of tubes affect pitch |

Opportunities to work scientifically

Year 5

| | Comparative and Fair Testing | Observations over time | Research using Secondary Sources | Grouping and Classifying | Pattern Seeking |
|--|--|--|---|---|---|
| Earth and Space | | | Research the planets in our solar system, including length of orbit | | Compare the distance a planet is from the Sun and its temperature |
| Animals, including humans | | | Research changes in humans at different stages in our lives | | Compare height with physical task e.g., distance a ball is thrown |
| Forces | Shape of an object and the time it takes to travel through water | | | | Surface material on a ramp and the distance/ speed it travels |
| Properties and changes of materials | Factors that affect the speed a solute dissolves in water, e.g., temperature | Observe over time the separation of a solute and solvent via evaporation | | Classify/ group materials as either soluble or insoluble | |
| Living things and their habitats | | | Research the life cycle of different animal groups | Classify/ group and animal based on its group and species | |

Opportunities to work scientifically

Year 6

| | Comparative and Fair Testing | Observations over time | Research using Secondary Sources | Grouping and Classifying | Pattern Seeking |
|---|--|--|---|---------------------------------------|---|
| Electricity | Effect of increasing voltage on the brightness of a bulb | | | | Compare brightness of bulb in series and parallel circuits |
| Animals, including humans | Impact of exercise on the heart rate | | Research how drugs affect the body | | Compare resting heart rate of different people |
| Living things and their habitats | | Conditions needed for bread to go mouldy | Research the different types of micro-organisms | Classify different types of arthropod | |
| Evolution and Inheritance | | | Research Charles Darwin and his work | | Compare skulls/ body parts of animals as they have evolved |
| Light | | | | Group materials based on transparency | Compare distance from light source and shadow ¹⁷ |

| KEPS 2023-2024 | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
|----------------|--|---|---|---|--|---------------------------------------|
| EYFS 1 | Human Body and Senses | Night and day bedtime | Materials and forces: Vehicles | How things work: bridges | Animals and plants | Minibeasts and lifecycles |
| EYFS 2 | Human Body myself | Night and day linked to seasonal activities | Senses Animals where they live and habitats | Underground animals | Where food comes from Food cycle | Minibeast and their cycles. Plants |
| Year 1 | Everyday Materials | Seasonal Changes 1 | Animals inc humans – Knowing parts of human body | Animals inc humans - Classification of Animals | Seasonal Changes 2: Weather and length of day | Plants |
| Year 2 | Animals including humans: Healthy living | Plants 1: How plants grow | Uses of Everyday materials | Living things and their habitats | Plants 2: Trees | Living things and their habitats |
| Year 3 | Rocks and soils | Animals inc humans: Skeletons and muscles | Forces and magnets | Plants: Parts of a plant | Plants: Life Cycle | Light and dark |
| Year 4 | Sound | States of matter | Living things and their habitats: Classifications of animals. | | Animals including humans: Digestive System | Electricity |
| Year 5 | Living things and their habitats: Life cycles | Earth and Space | Forces | Properties and changes of materials: Reversible and Irreversible changes. | | Animals inc humans: Human life cycles |
| Year 6 | Living things and their habitats: Classifications of Living things | Electricity | Evolution and Inheritance | Light | Animals inc humans: Heart and the circulatory system | |

Understanding of the World: Science

3 and 4-year olds will ...

Children should be learning to:

- Use all their senses in hands-on exploration of natural materials
- Explore collections of materials with similar and/or different properties.
- Talk about what they see, using a wide vocabulary

Key Vocabulary

plastic

wood

glass

bricks

metal

leather

Examples of how this could be supported

Provide interesting natural environments for children to explore freely outdoors. Make collections of natural materials to investigate and talk about. Suggestions:

- contrasting pieces of bark
- different types of leaves and seeds
- different types of rocks
- different shells and pebbles from the beach

Provide equipment to support these investigations. Suggestions: magnifying glasses or a tablet with a magnifying app. Encourage children to talk about what they see. Model observational and investigational skills. Ask out loud: "I wonder if...?" Plan and introduce new vocabulary, encouraging children to use it to discuss their findings and ideas

Stages of Development

Collect different materials they find in outside places like woods, etc (taking care to be environmentally friendly)

Organise the collections into groups, such as things that grow / grew and things that did not grow.

Label different materials by name, i.e., wood, plastic, glass, etc. Consider some of their uses.

Look more closely at natural materials by using magnifying instruments and get children to make observations, both in words and drawing.

The Natural World: End of nursery expectation

- Able to comment and ask questions about aspects of their familiar world, such as the place where they live or the natural world;
- Talking about some of the things they have observed such as plants, animals, natural and found objects;
- Talking about why things happen and how things work;
- Developing an understanding of growth, decay and changes over time;
- Showing care and concern for living things and the environment.

Understanding of the World: Science

3 and 4-year olds will ...

Children should be learning to:

Examples of how this could be supported

Stages of Development

Explore how things work

Provide mechanical equipment for children to play with and investigate.

Suggestions: wind-up toys, pulleys, sets of cogs with pegs and boards

Let children explore a range of toys with moving parts, these may include wind up toys and battery operated toys.

Explore anything that has wheels. Look at toys, scooters and bicycles.

Let children explore using small wheeled vehicles moving on different surfaces, such as sand wood, etc.

Let children make up their own vehicles, etc. and add wheels to them. Let them understand more about how they can make things move on their own.

Key Vocabulary

- cogs
- wind up
- pulley
- battery
- pop up
- key

The Natural World: End of nursery expectation

- **Able to comment and ask questions about aspects of their familiar world, such as the place where they live or the natural world;**
- Talking about some of the things they have observed such as plants, animals, natural and found objects;
- **Talking about why things happen and how things work;**
- Developing an understanding of growth, decay and changes over time;
- Showing care and concern for living things and the environment.

Understanding of the World: Science

3 and 4-year olds will ...

Children should be learning to:

Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant and an animal. Begin to understand the need to respect and care for the natural environment and all living things

Key Vocabulary

petal

root

flower

soil

grow

nature

Examples of how this could be supported

Show and explain the concepts of growth, change and decay with natural materials.

Suggestions:

- plant seeds and bulbs so children observe growth and decay over time
 - observe an apple core going brown and mouldy over time
 - help children to care for animals and take part in first-hand scientific explorations of animal life cycles, such as caterpillars or chick eggs.
- Plan and introduce new vocabulary related to the exploration. Encourage children to use it in their discussions, as they care for living things.

Encourage children to refer to books, wall displays and online resources. This will support their investigations and extend their knowledge and ways of thinking.

Stages of Development

Look at a number of plants growing in the natural environment, look at wild flowers but also trees.

Find out more about seeds by looking carefully at sunflowers and also fruit and isolate the seeds.

Plant the seeds in different materials including soil and talk about what they need to do to take care of the seed.

Consider what happens to eggs and caterpillars as they develop. Let them have first hand experiences of different growth cycles.

The Natural World: End of nursery expectation

- **Able to comment and ask questions about aspects of their familiar world, such as the place where they live or the natural world;**
- **Talking about some of the things they have observed such as plants, animals, natural and found objects;**
- **Talking about why things happen and how things work;**
- **Developing an understanding of growth, decay and changes over time;**
- **Showing care and concern for living things and the environment.**

Understanding of the World: Science

3 and 4-year olds will ...

Children should be learning to:

Explore and talk about different forces they can feel.

Examples of how this could be supported

Draw children's attention to forces.
Suggestions:

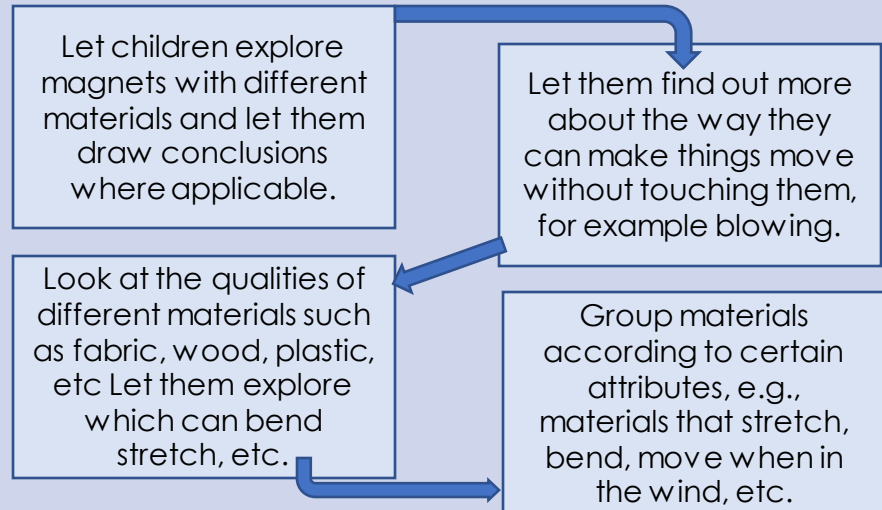
- how the water pushes up when they try to push a plastic boat under it
- how they can stretch elastic, snap a twig, but cannot bend a metal rod
- magnetic attraction and repulsion

Plan and introduce new vocabulary related to the exploration and encourage children to use it.

Key Vocabulary

- attract
- windmill
- pushing
- pulling
- stretching
- bending

Stages of Development



The Natural World: End of nursery expectation

- **Able to comment and ask questions about aspects of their familiar world, such as the place where they live or the natural world;**
- Talking about some of the things they have observed such as plants, animals, natural and found objects;
- **Talking about why things happen and how things work;**
- Developing an understanding of growth, decay and changes over time;
- Showing care and concern for living things and the environment.

Understanding of the World: Science

Reception aged children will ...

Children should be learning to:

Explore the natural world around them

Examples of how this could be supported

Provide children with have frequent opportunities for outdoor play and exploration. Encourage interactions with the outdoors to foster curiosity and give children freedom to touch, smell and hear the natural world around them during hands-on experiences. Create opportunities to discuss how we care for the natural world around us. Offer opportunities to sing songs and join in with rhymes and poems about the natural world.

After close observation, draw pictures of the natural world, including animals and plants. Observe and interact with natural processes, such as ice melting, a sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting an object and a boat floating on water

Stages of Development

Appreciate that there are a number of creatures that share our planet with us

Learn to look more closely at plants, animals and insects that are around us

Begin to notice certain patterns in the natural world, e.g., spider spinning a web, ice melting, sun going behind clouds

Talk about and draw some of the natural phenomena around them by observing and recording.

Key Vocabulary

- hedgehog
- minibeast
- shadow
- melting
- floating
- spider

The Natural World: Early Learning Goal

- **Explore the natural world around them, making observations and drawing pictures of animals and plants;**
- **Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class;**
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Understanding of the World: Science

Reception aged children will ...

Children should be learning to:

Describe what they see, hear and feel whilst outside

Key Vocabulary

- showers
- drizzle
- robin
- chaffinch
- oak tree
- conkers

Examples of how this could be supported

Encourage focused observation of the natural world.
Listen to children describing and commenting on things they have seen whilst outside, including plants and animals. Encourage positive interaction with the outside world, offering children a chance to take supported risks, appropriate to themselves and the environment within which they are in.
Name and describe some plants and animals children are likely to see, encouraging children to recognise familiar plants and animals whilst outside

Stages of Development

Experience being out in the wind, rain and sun. Begin to talk about the experience of getting wet and feeling the wind

Begin to recognise some of the potential hazards associated with the outside environment but also recognise its beauty

Have the vocabulary to describe their experiences in much greater detail

Begin to name some of the common plants and animals they see, including names of common birds

The Natural World: Early Learning Goal

- **Explore the natural world around them, making observations and drawing pictures of animals and plants;**
- **Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class;**
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Understanding of the World: Science

Reception aged children will ...

Children should be learning to:

Understand the effect of changing seasons on the natural world around them.

Key Vocabulary

- Autumn
- Winter
- Spring
- Summer
- evergreen
- deciduous

Examples of how this could be supported

Guide children's understanding by draw children's attention to the weather and seasonal features. Provide opportunities for children to note and record the weather. Select texts to share with the children about the changing seasons. Throughout the year, take children outside to observe the natural world and encourage children to observe how animals behave differently as the seasons change. Look for children incorporating their understanding of the seasons and weather in their play

Stages of Development

Notice that the weather changes very frequently and that they have to wear different clothing through the year

Be able to contribute to a weather chart using appropriate symbols when doing so

Know which season is the hottest in the year and which is the coldest

Know the names of the seasons and be able to articulate what each season brings

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