

Ensuring Excellence through an enriched curriculum

Trinity School



<u>Family Colour:</u>
Blue – Survival (animals)
Green – Survival (plants)
Brown – Energy Changes
Yellow – Forces
Pink – Materials
Grey – Earth & Space

Subject coverage for Science Nursery and Reception

<ul style="list-style-type: none"> • Can talk about some of the things they have observed such as plants, animals, natural and found objects. R4 • Shows care and concern for living things and the environment. R5 <p>Makes observations of animals and plants and explains why some things occur and talks about changes. ELG</p>	<ul style="list-style-type: none"> • Enjoys playing with small world reconstructions, building on first-hand experiences, e.g. visiting farms, garages, train tracks, walking by river or lake. R4 • Shows care and concern for living things and the environment. R5 <p>Makes observations of animals and plants and explains why some things occur and talks about changes. ELG</p>	<ul style="list-style-type: none"> • Notices detailed features of objects in their environment. (parts of plants) • Can talk about some of the things they have observed such as plants, animals, natural and found objects. R4 <ul style="list-style-type: none"> • Developing an understanding of growth, decay and changes over time. <ul style="list-style-type: none"> • Shows care and concern for living things and the environment R5 • Begin to understand the effect their behaviour can have on the environment. R6. • Knows about similarities and differences in relation to places, objects, materials and living things. R6 <p>Makes observations of animals and plants and explains why some things occur and talks about changes. ELG</p>
<ul style="list-style-type: none"> • Talks about why things happen and how things work. R5 • Developing an understanding of growth, decay and changes over time. R5 	<ul style="list-style-type: none"> • Notices detailed features of objects in their environment. (weather) R4 • Talks about why things happen and how things work. R5 • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. ELG 	<ul style="list-style-type: none"> • Enjoys playing with small world reconstructions, building on first-hand experiences, e.g. visiting farms, garages, train tracks, walking by river or lake. (small world construction) R4 • Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world. R5 <ul style="list-style-type: none"> • Shows care and concern for living things and the environment. (Ocean pollution) R5 <ul style="list-style-type: none"> • Begin to understand the effect their behaviour can have on the environment. R6 • Talks about the features of their own immediate environment and how environments might vary from one another. R6 <p>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. ELG</p>

Working Scientifically for EYFS – Characteristics of Effective Learning

Playing and Exploring	Active Learning	Creative and Critical Thinking
<p style="text-align: center;">Engagement</p> <p style="text-align: center;">Finding out and exploring Playing with what they know Being willing to 'have a go'</p>	<p style="text-align: center;">Motivation</p> <p style="text-align: center;">Being involved and concentrating Keep trying Enjoying achieving what they set out to do</p>	<p style="text-align: center;">Thinking</p> <p style="text-align: center;">Having their own ideas Making Links Working with ideas</p>

Subject coverage for Science Year 1

<p>Ourselves and other animals</p> <p>Animals are alive and move. Animals have bodies with similar parts.</p> <p>There are lots of different types of animals that live in our local area.</p> <p>Animals have different senses which help them to survive. Thinking about what they eat helps us sort animals into herbivores, carnivores and omnivores.</p>	<p>Pushes and Pulls</p> <p>There are different sources of pushes and pulls, other than ourselves.</p> <p>Different things move in different ways, by either push or a pull.</p> <p>A big push can make an object travel further or/and faster.</p> <p>Pushes and pulls can move or stop an object.</p>	<p>Growing plants</p> <p>There are lots of different types of wild and garden plants.</p> <p>Plants have different parts – root, stem, flower and leaf.</p> <p>Humans and animals eat different parts of different plants.</p> <p>Plants are alive and need water and light to grow healthy.</p>
<p>Sounds and Hearing</p> <p>We can make sounds in different ways by moving parts of our body.</p> <p>There are lots of different ways of making sounds. We describe sounds in a different way.</p> <p>We hear with our ears. Our hearing can help us to sense dangers.</p> <p>Sounds seem louder the nearer you are to the source and fainter the further away you are from it.</p>	<p>Sorting and grouping materials</p> <p>Different objects are made up of different materials. Some materials are waterproof, others are absorbent.</p> <p>We can describe and group objects using scientific words.</p> <p>Testing materials can help us to identify the best material for a particular job.</p>	<p>Seasons</p> <p>The sun is a source of light and heat. This gives us our warm days.</p> <p>Each year we have four different seasons. The days are longer in the summer and shorter in the winter.</p> <p>We can see patterns in the weather during different seasons.</p>

Working Scientifically

- Asking simple questions and recognising they can be answered in different ways
 - Observing closely, using simple equipment
 - Performing simple tests
 - Identifying and classifying
 - Using their observations and ideas to suggest answers to questions
 - Gathering and recording data to help in answering questions

Subject coverage for Science Year 2

<p>Health and Growth Autumn 1</p> <p>Animals are alive. Babies grow into adults and can have their own offspring. There are many different types of food. Exercise and hygiene help humans to keep themselves healthy. To survive all animals (including humans) need water, food and air.</p>	<p>Forces and Movement Summer 1</p> <p>Pushes and pulls can make things speed up or slow down. Pushes and pulls are examples of a force. Pushes and pulls can change the shape of an object. Pushes and pulls can change the direction of a moving object.</p>	<p>Living things in their habitats Spring 1</p> <p>Animals and plants are suited to the habitats (or micro-habitats) that they live in. By comparing and sorting plants and animals we can identify them. Seeds and bulbs grow into mature plants. Flowering plants create seeds to reproduce. Seeds need water, air and warmth to germinate.</p>
<p>Using electricity Summer 2</p> <p>We can group and sort appliances into those that use the mains and those that use a battery supply. Electricity can be used to make things light up, heat up, produce sounds or move. We can test how electrical devices will only work if the circuit is complete. A switch can be used to control a circuit.</p>	<p>Variation Spring 2</p> <p>Animals have similarities and differences. Plants have similarities and differences. There are differences between things that are living, non-living and dead. Plants and animals can be grouped by using their similarities and differences.</p>	<p>Everyday Materials Autumn 2</p> <p>The same material can be used to make lots of different types of objects. We can change some materials by using forces. Heating and cooling can make some materials change. Water can change into ice. Then, if you heat it up, it changes back again.</p>

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Subject coverage for Science Year 3

<p>Feeding, Moving and growing Spring 1</p> <p>Like all animals, humans can not make their own food. We get nutrition from what we eat. Skeletons support and protect animal's bodies. Different animals need different types of diet to stay healthy, and to grow and develop. Pairs of muscles work to pull on bones to move different parts of our body.</p>	<p>Forces and magnets Autumn 2</p> <p>Most forces need contact between two surfaces but magnetism is a non-contact force. Only some metals are magnetic. Knowing this can help us sort and group materials. We can compare how different surfaces can affect how far an object moves. Magnets have two poles.</p>	<p>Helping plants to grow well Summer 2</p> <p>Plants need healthy roots, stems and leaves in order to grow well. Flowers play a vital part in the life cycle of a plant. Plants take in water through their roots and it moves up through the stem and leaves. Different types of plants need different amounts of air, light, water, nutrients and space.</p>
<p>Light and shadows Summer 1</p> <p>There are lots of sources of light. We need light to be able to see things. Shadows are created by blocking the light from the Sun or other sources. Some materials create different shadows as they are either transparent, translucent or opaque. There are patterns in the way that shadows can change when a light source moves or the distance changes.</p>	<p>Using materials Spring 2</p> <p>It is important to choose the material with the right properties for a particular job. Some objects have versions that can be made out of different materials for different jobs. Testing ideas can give us evidence to help decide which material is the best material for a particular job. Carrying out investigations involves us sorting, measuring and then describing our fair tests.</p>	<p>Rocks and soils Autumn 1</p> <p>Dig deep enough through any soil and you will always find a layer of rock. When rocks get broken up into tiny pieces they can make soils. Different types of rocks can be used for different jobs. Fossils can be made when things that have lived get trapped within the rock.</p>

Working Scientifically

- Asking relevant question and using different types of scientific enquiries to answer them
 - Setting up simple practical enquiries, comparative and fair tests
- Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
 - Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
 - Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables
- Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
 - Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
 - Identifying differences, similarities or changes related to simple scientific ideas and processes
 - Using straightforward scientific evidence to answer questions or to support their findings

Subject coverage for Science Year 4

<p>Teeth and eating Autumn 2</p> <p>Animals have different types of teeth which do different jobs. The digestive system is made up of lots of different parts. Some foods and drinks can damage our teeth and gums. There are things we can do to stop this. Animals absorb their digested food and use it to give them the energy to move.</p>	<p>Changing sounds Spring 2</p> <p>Sounds are made when objects or materials vibrate. By changing the vibrations we can make sounds that are louder or softer. By changing the vibrations we can change the pitch of a sounds to make it higher or lower. The vibrations from a sound source travel better through some materials than others.</p>	<p>Habitats and Survival Summer 1</p> <p>We can group animals and plants according to the features that they have. Food chains help us to explain the feeding relationships in habitats. There are many different types and sizes of habitat locally. Environments can change and these changes can pose dangers to living things.</p>
<p>Circuits and conductors Autumn 1</p> <p>We can investigate patterns in electricity flowing around battery powered circuits. Metals are good conductors of electricity, most other materials are not. If a circuit is incomplete (or switched off) the device will not work. You need to match the components in a circuit to make it work.</p>	<p>Solids, liquids and gases Summer 2</p> <p>Understanding the differences between solids, liquids and gases helps us to sort and group materials. Heating a solid causes it to melt into a liquid. When liquids get hot enough they will evaporate into a gas. Understanding changes of state and temperature helps us to understand and explain the water cycle.</p>	<p>Keeping warm Spring 1</p> <p>Something hot will cool down (or something cold will warm up) until it is the same temperate as its surroundings. Temperature is a measure of how hot or cold things are. Good thermal insulators can be used to help keep hot objects hot, or keep cool ones cold. Materials such as metals that are good electrical conductors are often good thermal conductors.</p>

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Subject coverage for Science Year 5

<p style="text-align: center;">Life Cycles Summer 1</p> <p>As humans we go through several different stages during our lifetime.</p> <p>Different animals survive by having different life cycle strategies. For a long and healthy life we need a balanced diet and regular exercise.</p> <p>Improvements in science, health and hygiene mean that human life expectancy is longer today than it has ever been.</p>	<p style="text-align: center;">Forces and Gravity Autumn 2</p> <p>More than one force can act on an object. Galileo and Newton helped to develop the theory of gravitation.</p> <p>Forces are of varying sizes.</p> <p>Gravity is force that acts from a distance.</p>	<p style="text-align: center;">Interdependence and Adaptation Summer 2</p> <p>Green plants survive and grow by making their own food.</p> <p>Different plants grow in different types of soil. The animals and plants in any habitat are interdependent.</p> <p>Food chains and webs help us to understand the feeding relationships in many different habitats (local and global).</p>
<p style="text-align: center;">Changing State Spring 2</p> <p>Melting, freezing, condensing and evaporating are all changes of state which can be reversed.</p> <p>Powders, sponges and soils are all solids, but they have gas trapped in the gaps within them.</p> <p>We can measure how gases (including air) can produce forces and have weight.</p> <p>Gases are different from solids and liquids as they can't keep their shape or volume and can flow in any direction.</p>	<p style="text-align: center;">The Earth and Space Autumn 1</p> <p>The Earth rotates on its axis every 24hrs as it orbits the Sun.</p> <p>The Sun, Moon and Earth are all approximately spheres.</p> <p>The Moon orbits the Earth every 28 days.</p> <p>The Earth takes about 365 days to orbit the Sun.</p>	<p style="text-align: center;">Dissolving Spring 1</p> <p>Some solids can dissolve in water to form solutions. There are ways of helping a solid to dissolve more quickly in a liquid.</p> <p>The more solid you dissolve, the more concentrated the solution.</p> <p>We can test how in a set amount of liquid you can dissolve different amounts of different solids.</p>

Working Scientifically

- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
 - Using test results to make predictions to set up further comparative and fair tests
- Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations
 - Identifying scientific evidence that has been used to support or refute ideas or arguments

Subject coverage for Science Year 6

<p>Fuel for life Summer 1</p> <p>The heart is made up of muscle. When it contracts it pumps blood around our arteries and veins. During exercise our muscles work harder. Our pulse rate increases so more blood gets to the muscles. Food and oxygen are taken to the muscles so they can use them to get the energy that they need. Waste products are taken away. Diet, exercise, drugs and lifestyle can all have an impact on how well your body works.</p>	<p>Forces and movement Spring 2</p> <p>Drag forces resist movement. Unless an object is driven then drag forces will cause it to slow down. Investigating drag forces shows us how they can affect movement. Unless an object is driven then drag forces will cause it to slow down. Forces can have more effect when transferred through simple machines.</p>	<p>Evolution and inheritance Summer 2</p> <p>Animals and plants change over time. Fossils give evidence about the type of living things that lived on Earth millions of years ago. Animals and plants are adapted to suit their environment in different ways. Animals produce offspring of the same kind, but they vary and are not identical to their parents. Over many, many generations the bodies of plants and animals have gradually changed to better suit their environment.</p>
<p>Changing circuits Autumn 2</p> <p>Using the wrong components may cause damage. Circuits can be drawn as circuit diagrams. Making changes to the wire used in a circuit can influence the brightness of the bulb or loudness of a buzzer. If you are careful you can alter circuits to speed up motors, make buzzers louder or bulbs brighter.</p>	<p>Reversible and Irreversible Changes Spring 1</p> <p>When materials are mixed sometimes they change because of dissolving. Others can change due to reactions. Heating or cooling some mixtures can cause reactions (irreversible changes). If a change is reversible then filtering and/or evaporation can be used to get the original materials back from a mixture. Burning is an irreversible change that produces heat and new materials. Because of this we need to recognise hazards around the home.</p>	<p>How we see things Autumn 1</p> <p>When a beam of light is reflected it changes its direction. Light travels in straight lines so shadows are the same shape as the objects that cast them. Shiny surfaces reflect light better than dull ones. We see objects when rays of light travel in straight lines from a light source to our eyes (sometimes directly, sometimes after reflection).</p>

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