

**Trinity St Mary's Church of England Primary School Subject Progression:
Key Stage 1 and 2
Subject Area: Science**

Pupils should learn essential aspects of the knowledge, methods, processes and uses of science. Pupils should 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. They should be able to use technical terminology accurately and precisely. They should build up an extended scientific and specialist vocabulary. They should apply mathematical knowledge to their understanding of science, including collecting, presenting and analysing data. Children should learn how to work 'scientifically'

National Curriculum Objectives

KEY STAGE 1:

Pupils should be taught to:

- Ask simple questions and recognise they can be answered in different ways.
- Observe closely using simple equipment
- Perform simple tests.
- Identify and classify
- Use observations and ideas to suggest answers to questions
- Gather and record data to help answer questions.

KEY STAGE 2

Pupils should be taught to:

- Ask and plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
- Set up practical enquiries, comparative and fair tests.
- Make systematic and careful observations, and take accurate measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate.
- Gather, record, classify and present data and results of increasing complexity using scientific diagrams and labels, classification tables, scatter graphs, bar and line graphs.
- Report of findings using scientific language, including oral and written explanations, displays or presentations of results and conclusions. Use test results to make predictions and set up further comparative and fair tests.
- Identify differences, similarities or changes related to simple scientific ideas and processes. Use evidence to support or refute ideas and arguments.
- Use straightforward scientific evidence to answer questions or to support their findings.

Year 1 – I Can...	Year 2 – I Can ...	Year 3 – I Can ...	Year 4 – I Can	Year 5 – I Can	Year 6 – I Can ...
<p>The Skeleton and Animals</p> <ul style="list-style-type: none"> Describe and compare the structure of a variety of animals (birds, fish, amphibians, reptiles, mammals and invertebrates, and including pets). Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. <p>Seasonal Change</p> <ul style="list-style-type: none"> Observe and describe weather associated with the seasons Observe and describe how day length varies. Observe changes across the four seasons <p>Everyday Materials</p> <ul style="list-style-type: none"> Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. Describe the simple physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials on the basis of their simple physical properties. <p>Animals, including humans</p> <ul style="list-style-type: none"> Identify and name a variety of common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates. Identify and name a variety of common animals that are carnivores, herbivores and omnivores. <p>Plants and Trees</p> <ul style="list-style-type: none"> Identify and name a variety of common plants, 	<p>Living things and their habitats</p> <ul style="list-style-type: none"> 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 and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. Identify and name a variety of plants and animals in their habitats, including micro-habitats. 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. <p>Plants</p> <ul style="list-style-type: none"> Observe and describe how seeds and bulbs grow into mature plants. Find out and describe how plants need water, light, and a suitable temperature to grow and stay healthy. <p>Uses of Everyday Materials</p> <ul style="list-style-type: none"> 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. <p>Animals Including Humans</p> <ul style="list-style-type: none"> Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) Notice that animals, including humans, have offspring which grow into adults. Describe the importance for 	<p>Light</p> <ul style="list-style-type: none"> Notice that light is reflected from surfaces Find patterns that determine the size of shadows <p>Forces and Magnets</p> <ul style="list-style-type: none"> 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 <p>Animals, including Humans</p> <ul style="list-style-type: none"> 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 animals have skeletons and muscles for support, protection and movement. <p>Plants</p> <ul style="list-style-type: none"> Identify and describe the functions of different parts of flowering plants: roots, stem, leaves and flowers. Explore the requirements of plant 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 	<p>Electricity with Insulators and Conductors</p> <ul style="list-style-type: none"> 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 Recognize that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit Recognize some common conductors and insulators, and associate metals with being good conductors <p>Living things and their habitats</p> <ul style="list-style-type: none"> Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to help group, identify and name of living things in their local and wider environments. Recognise that environments can change and that this can sometimes pose dangers to living things. <p>Animals, including humans</p> <ul style="list-style-type: none"> 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 <p>Sound</p> <ul style="list-style-type: none"> Identify how sounds are made, associating some of them with something vibrating. Find patterns between the pitch of a sound and features of the 	<p>Living things and their habitats, including plants</p> <ul style="list-style-type: none"> Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Describe the life process of reproduction in some plants and animals. <p>Properties and Changes of Materials</p> <ul style="list-style-type: none"> 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 Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic Demonstrate that dissolving, mixing and changes of state are reversible changes Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda. <p>Earth and Space</p> <ul style="list-style-type: none"> describe the movement of the Earth, and other planets, relative to the Sun in the solar system describe the movement of the Moon relative to the Earth describe the Sun, Earth and Moon as approximately spherical bodies 	<p>Light</p> <ul style="list-style-type: none"> recognise that light appears to travel in straight lines 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 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 use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. <p>Electricity</p> <ul style="list-style-type: none"> associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches use recognised symbols when representing a simple circuit in a diagram. <p>Living things and their habitats</p> <ul style="list-style-type: none"> Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. Give reasons for classifying plants and animals based on specific characteristics. <p>Evolution and Inheritance</p> <ul style="list-style-type: none"> recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents identify how animals and plants

<p>including garden plants, wild plants and trees, and those classified as deciduous and evergreen.</p> <ul style="list-style-type: none"> Identify and describe the basic structure of a variety of common flowering plants, including roots, stem/trunk, leaves and flowers 	<p>humans of exercise, eating the right amounts of different types of food, and hygiene.</p>	<p>play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p> <p>Rocks</p> <ul style="list-style-type: none"> 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. Recognize that soils are made from rocks and organic matter. 	<p>object that produced it.</p> <ul style="list-style-type: none"> Identify patterns between the volume of a sound and the strength of the vibrations that produced it <p>States of Matter</p> <ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. <p>Forces</p> <ul style="list-style-type: none"> explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object identify the effects of air resistance, water resistance and friction, that act between moving surfaces recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. <p>Animals, including humans</p> <ul style="list-style-type: none"> Describe the changes as humans develop from birth to old age 	<p>are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p> <p>Scientists and Inventors</p> <ul style="list-style-type: none"> an in depth study into various scientists and how they have influenced our lives a comparison between a modern day scientist and a scientist from the past <p>Animals, including Humans</p> <ul style="list-style-type: none"> identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function describe the ways in which nutrients and water are transported within animals, including humans.
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