



## Progression of Knowledge and Skills in Science

### Infant School

#### **School Intent**

At Thomas A' Becket Infant School it is our intent for the subject of science to encourage our children to be curious about natural phenomena and satisfy their curiosity with knowledge. In our rapidly evolving world, it is important our children are taught essential aspects of scientific knowledge, methods, and processes. They will be given first hand opportunities to experience Science in action. We encourage our pupils to ask lots of questions, investigate and evaluate their scientific findings. Children will learn to question and discuss science-based issues that may affect their own lives, the direction of society and the future of the world.

#### **EYFS – Understanding the World**

##### **The Natural World**

Explore the natural world around them, making observations using scientific equipment, labelling, and drawing pictures of animals and plants. Discuss care and empathy towards all living things, including ways to care for the planet. Know some similarities and differences between the natural world around them and contrasting environments, including habitats of a variety of animals, 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. Identify and name human body parts and its associated sense.

##### **National curriculum 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 cause.

##### **National curriculum aims to ensure that children:**

- Develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics.
- 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.
- Are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

##### **Impact**

The impact of our Science curriculum will be evident in the children's My World Books, Class Books, on class and corridor displays and through the observations teachers' record for children. Teacher Assessments in Science will be monitored using Insight and teachers will input assessments at the end of phase assessments. Key questions will be displayed to allow children to demonstrate their knowledge and understanding.

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Key Concepts	Reception	Year 1	Year 2
<b>Working Scientifically</b>	<p><b>Vocabulary</b> Watch, observe, question, scientific, magnify glass, bug finder, bug viewer, scientific equipment, similar, same, different.</p> <ul style="list-style-type: none"> <li>• Make simple observations of the world around them.</li> <li>• Children make links in their learning using prior knowledge and experience.</li> <li>• Talk about answers to questions.</li> <li>• Can record using marks which can be interpret and explain.</li> <li>• Explore simple scientific equipment in the environment e.g., magnifying glasses, cameras, bug viewers, sorting hoops, pipettes, and containers.</li> <li>• Perform a simple test: observe simple cause and effect e.g., melting, freezing.</li> <li>• Carry out simple sorting activities recognising similarities and differences.</li> </ul>	<p><b>Vocabulary</b> aim, answers, block diagrams, changes, compare, describe, difference, different, enquiry, equipment, experience, explore, findings, gather, group, sort, name, investigate, measure, notice observe, patterns, pictograms, questions, record, same, similarity, simple tables, sort, sorting diagrams, tally charts, test, What will we do? (plan), What do you think will happen? (prediction), What happened? (results), What have we found out? (conclusion)</p> <ul style="list-style-type: none"> <li>• Ask simple questions.</li> <li>• Use observations and ideas to suggest answers to questions.</li> <li>• Use simple scientific equipment for an investigation.</li> <li>• Perform a simple test: predict, carry out and make simple evaluations.</li> <li>• To identify and classify objects and materials using a variety of criteria.</li> <li>• Gathering and recording data to help in answer questions.</li> </ul>	<p><b>Vocabulary</b> Previous vocab plus observe changes over time, notice patterns, identify, classify, data.</p> <ul style="list-style-type: none"> <li>• Ask simple questions and recognise they can be answered in different ways.</li> <li>• Use observations and ideas to suggest answers to questions with a detailed explanation.</li> <li>• Select and use appropriate scientific equipment for an investigation.</li> <li>• Perform a simple test: plan, predict, carry out and evaluate.</li> </ul>
<b>Plants</b>	<p><b>Vocabulary</b> plants, stem, seeds, flower, petals, roots, leaves, minibeasts/ insects.</p>	<p><b>Vocabulary</b> <u>Names of common plants:</u> wild plant, garden plant, evergreen tree, deciduous tree, common flowering plant, weed, grass. <u>Name some features of plants:</u> e.g., flower, vegetable, fruit, berry, leaf/leaves, blossom, petal, stem, trunk, branch, root, seed, bulb, soil. <u>Name some common types of plant</u> e.g., sunflower, daffodil.</p>	<p><b>Vocabulary</b> <u>Growth of plants:</u> germination, shoot, seed dispersal, grow, food store, life cycle, die, wilt, seedling, sapling. <u>Needs of plants:</u> sunlight, nutrition, light, healthy, space, air. <u>Name different types of plant:</u> e.g., bean plant, cactus.</p>

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	<ul style="list-style-type: none"> <li>• Use senses to explore and talk about plants.</li> <li>• Children observe plants in their environment and talk about the changes they go through.</li> <li>• Describe what a plant looks like and begin to name simple parts e.g., petals, roots, leaves, stem.</li> </ul>	<ul style="list-style-type: none"> <li>• Compare different plants.</li> <li>• Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</li> <li>• Identify and describe the basic structure of a variety of common flowering plants, including trees.</li> <li>• Label the parts of the plant and talk about their purpose e.g., roots to take up water.</li> </ul>	<p><u>Names of different habitats:</u> e.g. rainforest, desert.</p> <p>Previously introduced vocabulary: water, temperature, warm, hot, cold, habitat</p> <ul style="list-style-type: none"> <li>• Grow a seed and/or bulb and observe how they grow into mature plants.</li> <li>• Talk about the lifecycle of a plant.</li> <li>• Find out and describe how plants need water, light, and a suitable temperature to grow and stay healthy.</li> </ul>
<p><b>Everyday materials</b></p> <p><b>Uses of everyday materials</b></p>	<p><b>Vocabulary</b> material, soft, hard, strong, texture, compare, same, different, sort.</p> <ul style="list-style-type: none"> <li>• Group together a variety of materials based on their properties e.g. soft, hard, strong.</li> <li>• Compare and group together a variety of everyday materials.</li> <li>• Sort materials into their material type.</li> </ul>	<p><b>Vocabulary</b> <u>Names of materials:</u> wood, plastic, glass, metal, water, rock, paper, cardboard, rubber, fabric. <u>Properties of materials:</u> hard, soft, shiny, dull, stretchy, rough, smooth, bendy, not bendy, transparent, opaque, waterproof, not waterproof, absorbent, not absorbent, sharp, stiff. <u>Other:</u> object.</p> <ul style="list-style-type: none"> <li>• Distinguish between an object and the material from which it is made.</li> <li>• Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.</li> <li>• Describe the simple physical properties of a variety of everyday materials.</li> </ul>	<p><b>Vocabulary</b> <u>Changing shape:</u> squash, bend, twist, stretch. <u>Properties of materials:</u> e.g. strong, flexible, light, hard-wearing, elastic. <u>Other:</u> suitability, recycle, pollution.</p> <ul style="list-style-type: none"> <li>• Discuss uses for materials and give reasons.</li> <li>• Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper, and cardboard for particular uses.</li> <li>• Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</li> </ul>
<p><b>Animals, including Humans</b></p>	<p><b>Vocabulary</b> Body parts and the names of basic body parts senses smell touch</p>	<p><b>Vocabulary</b> <u>Names of animal groups:</u> fish, amphibians, reptiles, birds, mammals. <u>Animal diets:</u> carnivore, herbivore, omnivore.</p>	<p><b>Vocabulary</b> <u>Being born and growing:</u> Young, offspring, live young, grow, develop, change, hatch, lay, fly, crawl, talk.</p>

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	<p>hear feel see</p> <ul style="list-style-type: none"> <li>Identify and name the basic parts of the human body and say which part of the body is associated with the 5 senses.</li> </ul>	<p><u>Human and animal body parts:</u> e.g., body, head, neck, arms, elbows, legs, knees, face, ears, eyes, nose, hair, mouth, teeth, hands, feet, tail, wings, feathers, fur, beak, fins, gills.</p> <p><u>Human senses:</u> sight, hearing, touch, smell, taste.</p> <p>• <u>Exploring senses:</u> loud, quiet, soft, rough.</p> <p><u>Other:</u> human, animal, pet.</p> <ul style="list-style-type: none"> <li>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.</li> <li>Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</li> <li>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).</li> <li>Draw and label the basic parts of the human body and talk about its use.</li> </ul>	<p><u>Young and adult names:</u> e.g. lamb and sheep, kitten and cat, duckling and duck.</p> <p><u>Life cycle stages:</u> e.g. baby, toddler, child, teenager, adult; frogspawn, tadpole, froglet, frog</p> <p><u>Survival and staying healthy:</u> basic needs, survive, food, air, exercise, diet, nutrition, healthy, balanced diet, hygiene, germs.</p> <p><u>Food groups:</u> fruit and vegetables, proteins, dairy and alternatives, carbohydrates, oil and spreads, fat, salt, sugar.</p> <p>Previously introduced vocabulary: water</p> <ul style="list-style-type: none"> <li>Notice that animals, including humans, have offspring which grow into adults.</li> <li>Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).</li> <li>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</li> </ul>
<p><b>Living things and their habitats</b></p>	<p><b>Vocabulary</b> World, hot, cold, town, countryside, field, grass, tree, forest, water, sea, pond, Space, sun, moon</p> <ul style="list-style-type: none"> <li>To talk about and explore empathy towards all living things in the environment.</li> <li>To name animals in different environments.</li> <li>Begin to sort animals to where they may live.</li> </ul>	<p><b>Vocabulary</b> As before...</p> <ul style="list-style-type: none"> <li>Identify and name a variety of plants and animals in their habitats, including microhabitats.</li> <li>Sort and group living things into their habitats.</li> <li>Talk about animal habitats.</li> </ul>	<p><b>Vocabulary</b> <u>Living or dead:</u> living, dead, never living, not living, alive, never been alive, healthy.</p> <p><u>Habitats including microhabitats:</u> depend, shelter, safety, survive, suited, space, minibeast, air.</p> <p><u>Life processes:</u> movement, sensitivity, growth, reproduction, nutrition, excretion, respiration.</p> <p><u>Food chains:</u> food sources, food, producer, consumer, predator, prey.</p>

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	<ul style="list-style-type: none"> <li>To talk about own environment and how environments may vary.</li> </ul>		<p><u>Names of habitats and microhabitats:</u> e.g. under leaves, woodland, rainforest, sea shore, ocean, urban, local habitat.</p> <ul style="list-style-type: none"> <li>Explore and compare the differences between things that are living, dead, and things that have never been alive.</li> <li>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.</li> <li>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.</li> </ul>
<p><b>Seasonal Change</b></p>	<p><b>Vocabulary</b>  Seasons  Change  Summer  Autumn  Winter  Spring  Cold  Weather  Temperature</p> <ul style="list-style-type: none"> <li>Observe changes across the four seasons</li> </ul>	<p><b>Vocabulary</b>  <u>Seasons:</u> spring, summer, autumn, winter, seasonal change.  <u>Weather:</u> e.g., sun, rain, snow, sleet, frost, ice, fog, cloud, hot/warm, cold, storm, wind, thunder, weather forecast.  <u>Measuring weather:</u> temperature, rainfall, wind direction, thermometer, rain gauge.  <u>Day length:</u> night, day, daylight.</p> <ul style="list-style-type: none"> <li>Observe and describe weather associated with the seasons.</li> <li>Observe and describe how day length varies in seasons.</li> </ul>	<p><b>Vocabulary</b>  Previous vocab and vocab from 'plants'.</p> <ul style="list-style-type: none"> <li>To recognise and compare the lifecycle of plants in different seasons.</li> </ul>