

**The Tithe Farm Way:**

*Resilient pupils who have a life-long love of learning and are ready, respectful and safe in their choices.*

**Whole School Science Progression of Skills**

Materials				
Year group	Nursery	Year 1	Year 2	Year 3
<b>Learning</b>	<ul style="list-style-type: none"> <li>Playing with a range of materials inside and outside.</li> <li>Exploration of different textures.</li> <li>Changing states e.g. cooking food, or mixing ingredients or melting ice cubes.</li> <li>Sinking and floating materials.</li> </ul>	<ul style="list-style-type: none"> <li>Distinguish between an object &amp; material.</li> <li>Identify &amp; name everyday materials.</li> <li>Describe properties of materials.</li> <li>Compare &amp; classify everyday materials based on their properties.</li> </ul>	<ul style="list-style-type: none"> <li>Explore how the shape of solid materials can be changed.</li> <li>Identify and compare suitability of materials.</li> </ul>	
<b>Key Vocab</b>	outside, inside, wet, dry, paint, playdough, water, explore, feet and hands, cooling, heating, ice, sink, float.	object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through	opaque, transparent, translucent, reflective, non-reflective, flexible, rigid, shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching	rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorbs water, fossil, bone, flesh, minerals, marble, chalk, granite, sandstone, slate, types of soil (e.g. peaty, sandy, chalky, clay) (magnetic force, magnet, attract, magnetic material, metal, iron, steel
Year group	Year 4 (state of matter)	Year 5 (properties & change of materials)	Year 6	
<b>Learning</b>	<ul style="list-style-type: none"> <li>Comparing materials and grouping dependent on their state.</li> <li>Observe changes in materials when cooled or heated.</li> <li>Observing evaporation and condensation in the water cycle linking it to the rate of evaporation with temperature.</li> </ul>	<ul style="list-style-type: none"> <li>Comparing everyday materials considering their properties (including electrical &amp; thermal)</li> <li>Understanding that some materials dissolve &amp; how to recover it.</li> <li>Use knowledge of solid, liquid &amp; gases. Thinking how they are separated.</li> <li>Provide reasoning from fair testing (focusing on wood, metal &amp; plastic).</li> <li>Changing state that are reversible.</li> <li>Identify that some changes form new materials e.g. burning &amp; acid on bicarbonate of soda.</li> </ul>		



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<b>Key Vocab</b>	solid, liquid, gas, heating, cooling, state change, melting, freezing, melting point, boiling, boiling point, evaporation, condensation, temperature, water cycle, electrical conductor, electrical insulator, metal, non-metal	thermal insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material		
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Plants				
Year group	Nursery	Reception	Year 1	Year 2
<b>Learning</b>	<ul style="list-style-type: none"> <li>Seeing different flowers e.g. daffodils &amp; cherry blossom.</li> <li>Digging soil.</li> <li>Planting, watering and looking after plants from seeds.</li> <li>Looking at leaves and barks and seeds.</li> </ul>	<ul style="list-style-type: none"> <li>Explore the natural world around them.</li> <li>Describe what they see, hear, feel whilst outside.</li> <li>Drawing different plants from their own observations.</li> </ul>	<ul style="list-style-type: none"> <li>Identify and name a range of wild &amp; garden plants.</li> <li>To identify and name deciduous and evergreen trees.</li> </ul>	<ul style="list-style-type: none"> <li>Observe and describe how seeds and bulbs grow.</li> <li>Find out how plants survive, grow and stay healthy.</li> </ul>
<b>Key Vocab</b>	seeds, plants, water, planting, sun, soil, flowers, digging, outside, cherry blossom, daffodils, leaves, seeds, magnifying glasses.	tree, bush, herb, names of plants they see	leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud, names of trees in the local area, names of garden and wild flowering plants in the local area	light, shade, Sun, warm, cool, water, space, grow, healthy, bulb, germinate, shoot, seedling
<b>Year group</b>	<b>Year 3</b>	<b>Year 6 (Evolution &amp; inheritance)</b>		
<b>Learning</b>	<ul style="list-style-type: none"> <li>Identify &amp; describe the functions of flower parts.</li> <li>Identify what plants need to thrive successfully and how it may vary in plants.</li> <li>Investigate how water is transported within plants.</li> <li>Explore the life cycle of plants &amp; pollination, seed formation and seed dispersal.</li> </ul>	<ul style="list-style-type: none"> <li>Identify how animals and plants adapt their environment.</li> </ul>		
<b>Key Vocab</b>	Photosynthesis, pollen, insect/wind pollination, male, female, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal), air, nutrients, minerals, soil, absorb, transport	flowering, non-flowering, mosses, ferns, conifers		

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Animals including Humans				
Year group	Nursey	Reception	Year 1	Year 2
<b>Learning</b>	<ul style="list-style-type: none"> <li>Looking for worms and mini beasts.</li> <li>Go outside and looking for different creatures in their habitats.</li> <li>Beginning to recognize the names of creatures.</li> </ul>	<ul style="list-style-type: none"> <li>Drawing pictures of animals around them in the natural world.</li> <li>To understand basic hygiene and personal needs e.g. going to the toilet and healthy food choices.</li> </ul>	<ul style="list-style-type: none"> <li>Identify common animals.</li> <li>Classify animals into fish, amphibians, reptiles, birds and mammals.</li> <li>Identify and name animals that are herbivores, carnivore &amp; omnivores.</li> <li>Describe and compare structures of animals.</li> <li>Identify, name and label basic human body parts.</li> <li>Identify which parts of the body are associated with a sense.</li> </ul>	<ul style="list-style-type: none"> <li>Identify that animals have offspring and grow into adults.</li> <li>Describe basic needs of animals in order for survival.</li> <li>Explain the importance of how to stay healthy (exercise, food types, hygiene).</li> </ul>
<b>Key Vocab</b>	mini beasts, outside, bugs, spiders, grass, tress.	animals, person hygiene, healthy, food, clean, dirty, world.	head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves, names of animals experienced first-hand from each vertebrate group, parts of the human body including those within the school's RSE policy, senses, touch, see, smell, taste, hear, fingers, skin, eyes, nose, ears, tongue	offspring, reproduction, growth, baby, toddler, child, teenager, adult, old person, names of animals and their babies (e.g. chick/chicken, kitten/cat, caterpillar/butterfly), survive, survival, water, food, air, exercise, heartbeat, breathing, hygiene, germs, disease, food types (e.g. meat, fish, vegetables, bread, rice, pasta, dairy)
Year group	Year 3	Year 4	Year 5	Year 6
<b>Learning</b>	<ul style="list-style-type: none"> <li>Explain that animals need nutrition and cannot make their own food.</li> <li>Identify that animals have skeletons and muscles (for support, protection and movement).</li> </ul>	<ul style="list-style-type: none"> <li>Describe the functions of the digestive system (humans).</li> <li>Name different teeth in humans and the functions.</li> <li>Understand food chains (producers, predators and prey).</li> </ul>	<ul style="list-style-type: none"> <li>Describe the development of a human whilst ageing.</li> </ul>	<ul style="list-style-type: none"> <li>Name parts of the human circulatory system.</li> <li>Describe functions of the heart, blood &amp; blood vessels.</li> <li>Understand the impact of diet, drugs, exercise &amp; lifestyle. How does it impact</li> </ul>

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				<p>the body's function?</p> <ul style="list-style-type: none"> <li>How water and nutrients are transported in animals &amp; humans.</li> </ul>
<b>Key Vocab</b>	<p>nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, joints, support, protect, move, skull, ribs, spine</p>	<p>digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, large intestine, rectum, anus, incisor, canine, molar, premolar, herbivore, carnivore, omnivore, producer, predator, prey</p>	<p>puberty, the vocabulary to describe sexual characteristics in line with the school's RSE policy</p> <p>life cycle, foetus, baby, child, adolescent, adult, reproduce, sexual, sperm, fertilises, egg, live young</p>	<p>heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, cycle, circulatory system, diet, drugs, lifestyle</p>

Seasonal Changes				
Year group	Nursery	Reception	Year 1	Year 3
<b>Learning</b>	<ul style="list-style-type: none"> <li>Enjoy and explore the natural world e.g. wellies, walking through grass, splashing in puddles.</li> </ul>	<ul style="list-style-type: none"> <li>Understand the changing seasons and the natural world around them.</li> <li>Make observations in the change of seasons and weather.</li> <li>Looking at the similarities and difference between known and seen environments (from books too).</li> </ul>	<ul style="list-style-type: none"> <li>Observe changes across all four seasons.</li> <li>Observe &amp; describe the weather.</li> <li>Associate seasons and length of day.</li> </ul>	
<b>Key Vocab</b>	<p>puddles, wellies, rain, sun, grass, splash.</p>	<p>spring, summer, autumn, winter, seasons, sunny, cloudy, hot, warm, cold, shower, raining, storm, thunder, lightning, hail, sleet, snow, icy, frost, puddles, windy, rainbow, animals, young, plants, flowers</p>	<p>weather, sunny, rainy, raining, shower, windy, snowy, cloudy, hot, warm, cold, storm, thunder, lightning, hail, sleet, snow, icy, frost, puddles, rainbow, seasons, winter, summer, spring, autumn, Sun, sunrise, sunset, day length</p>	



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Light				
Year group	Nursery	Year 3	Year 5	Year 6
<b>Learning</b>	<ul style="list-style-type: none"> <li>How you can shine light through some materials.</li> <li>Looking at shadows.</li> </ul>	<ul style="list-style-type: none"> <li>Recognize that we need light and what darkness is.</li> <li>Notice the reflection from a range of surfaces.</li> <li>Understand that light can be dangerous and how we can protect our eyes.</li> <li>Explore how shadows are formed.</li> <li>Find patterns in shadows.</li> </ul>		<ul style="list-style-type: none"> <li>Recognise that light travels in straight lines.</li> <li>To explain the way light travels using ideas such as reflect light into our eyes.</li> <li>Use their knowledge of straight lines to explain the shape of shadows.</li> <li>Explain how we see things using our knowledge of light and how it travels.</li> </ul>
<b>Key Vocab</b>	shadows, light, torch, material, dark, see, eyes.	light, light source, dark, absence of light, surface, shadow, reflect, mirror, Sun, sunlight, dangerous		straight lines, light rays

Rocks				
Year group	Nursery	Year 3		
<b>Learning</b>	<ul style="list-style-type: none"> <li>Looking at different rocks and pebbles from beaches.</li> </ul>	<ul style="list-style-type: none"> <li>Compare different rocks using judgement of appearance.</li> <li>Describe how fossils are formed.</li> <li>Understand that soils are made from rocks/organic matter.</li> </ul>		
<b>Key Vocab</b>	pebbles, grey, big, small, circle, rock, beach, magnifying glasses.	rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorbs water, fossil, bone, flesh, minerals, marble, chalk, granite, sandstone, slate, types of soil (e.g. peaty, sandy, chalky, clay)		



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Electricity				
Year group	Year 3	Year 4	Year 5	Year 6
Learning		<ul style="list-style-type: none"> <li>• What common appliances are &amp; identify them.</li> <li>• Construct simple circuits.</li> <li>• Name basic parts of a circuit.</li> <li>• Understand how a switch works and its effect on a lamp.</li> <li>• Identify if a lamp will light up based on the circuit made.</li> <li>• Understand and recognize good conducts (Particularly metal).</li> </ul>		<ul style="list-style-type: none"> <li>• Use symbols when drawing a circuit diagram.</li> <li>• Provide reasons for components functions e.g. brightness of a bulb.</li> <li>• Associate voltage and brightness when completing a circuit.</li> </ul>
Key Vocab		electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol		circuit diagram, circuit symbol, voltage

Sound				
Year group	Year 3	Year 4	Year 5	Year 6
Learning		<ul style="list-style-type: none"> <li>• How sounds are made (linking to vibrations)</li> <li>• How vibrations travel.</li> <li>• Find patterns between pitch and features of production.</li> <li>• Find patterns in the volume of sound.</li> <li>• Identify the different distance makes to sound.</li> </ul>		
Key Vocab		sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, quiet, loud, insulation		



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Living things and their habitats				
Year group	Year 2	Year 4	Year 5	Year 6
<b>Learning</b>	<ul style="list-style-type: none"> <li>Compare living things, dead and never have lived things.</li> <li>Describe suited habitats and how they provide basic needs for animals or plants.</li> <li>Name plants and animals including their habitat.</li> <li>Describe how animals get their food and describe the food chain.</li> </ul>	<ul style="list-style-type: none"> <li>Living things can be classified.</li> <li>Explore a range of classification keys to group living things.</li> <li>Environments change &amp; danger could be made to living things because of this.</li> </ul>	<ul style="list-style-type: none"> <li>Differences between life cycles of different classifications of animals.</li> <li>Describe the life process of reproduction (animals and plants).</li> </ul>	<ul style="list-style-type: none"> <li>Describe how living things are classified based on similarities &amp; differences (micro-organisms, plants &amp; animals).</li> <li>Provide reasons for classifying plants and animals (characteristic based).</li> </ul>
<b>Key Vocab</b>	living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, water, air, survive, survival	classification, classification keys	life cycle, reproduce, sexual, fertilises, asexual, plantlets, runners, tubers, cuttings (Y5 - Living things and their habitats)	flowering, non-flowering, mosses, ferns, conifers





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Forces & Magnets				
Year group	Year 3	Year 4	Year 5	Year 6
<b>Learning</b>	<ul style="list-style-type: none"> <li>Comparing how things move depending on the surface.</li> <li>Predicting magnetic interaction.</li> <li>Describing poles on magnets.</li> <li>Observing what happens to magnets &amp; some materials.</li> <li>Observe the contact between forces at various distances.</li> </ul>		<ul style="list-style-type: none"> <li>Recognising that some mechanisms have smaller force but larger effect.</li> <li>Identifying air resistance, water resistance &amp; friction on moving surfaces.</li> <li>Understanding the force of gravity (Earth &amp; a fallen object).</li> </ul>	
<b>Key Vocab</b>	force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south poles		force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears	



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Earth & Space				
Year group	Year 3	Year 4	Year 5	Year 6
Learning			<ul style="list-style-type: none"> <li>Describing the movement of the moon linking to the Earth's movement.</li> <li>Describing the movement of Earth &amp; planets in relation to the Sun.</li> <li>Describe the sun, Earth &amp; moon.</li> <li>Describe the explanation of day &amp; night using the movement of the sun.</li> </ul>	
Key Vocab			Sun, Moon, Earth, planets (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, Solar System, rotate, star, orbit	

Evolution & Inheritance				
Year group	Year 3	Year 4	Year 5	Year 6
Learning				<ul style="list-style-type: none"> <li>Recognise that living things have changed over the year using understanding of fossils.</li> <li>Recognise that offspring can vary in terms of not being identical.</li> <li>Identify how animals and plants adapt their environment.</li> <li>To begin to understand evolution.</li> </ul>
Key Vocab				offspring, sexual reproduction, vary, characteristics, adapted, inherited, species, evolve, evolution