

# Dothill Progression Mapping



## Science

Respect Happiness Responsibility Creativity HONESTY Enthusiasm Confidence Kindness Cooperation fairness

	Year Three	Year Four
<p><b>Substantive knowledge</b></p> <p>(Scientific knowledge and conceptual understanding)</p>	<p><b>Rocks</b></p> <ul style="list-style-type: none"> <li>✓ compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</li> <li>✓ describe in simple terms how fossils are formed when things that have lived are trapped within rock</li> <li>✓ recognise that soils are made from rocks and organic matter.</li> </ul> <p><b>Animals including Humans</b></p> <ul style="list-style-type: none"> <li>✓ 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</li> <li>✓ identify that humans and some other animals have skeletons and muscles for support, protection and movement.</li> </ul> <p><b>Forces &amp; Magnets</b></p> <ul style="list-style-type: none"> <li>✓ compare how things move on different surfaces</li> <li>✓ notice that some forces need contact between two objects, but magnetic forces can act at a distance</li> <li>✓ observe how magnets attract or repel each other and attract some materials and not others</li> <li>✓ 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</li> <li>✓ describe magnets as having two poles</li> <li>✓ predict whether two magnets will attract or repel each other, depending on which poles are facing.</li> </ul> <p><b>Light</b></p> <ul style="list-style-type: none"> <li>✓ recognise that they need light in order to see things and that dark is the absence of light</li> <li>✓ notice that light is reflected from surfaces</li> <li>✓ recognise that light from the sun can be dangerous and that there are ways to protect their eyes</li> <li>✓ recognise that shadows are formed when the light from a light source is blocked by an opaque object</li> <li>✓ find patterns in the way that the size of shadows change.</li> </ul> <p><b>Plants</b></p> <ul style="list-style-type: none"> <li>✓ identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</li> <li>✓ explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant</li> <li>✓ investigate the way in which water is transported within plants</li> <li>✓ explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</li> </ul>	<p><b>Living Things &amp; Their Habitats</b></p> <ul style="list-style-type: none"> <li>✓ recognise that living things can be grouped in a variety of ways</li> <li>✓ explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</li> <li>✓ recognise that environments can change and that this can sometimes pose dangers to living things.</li> </ul> <p><b>Animals including Humans</b></p> <ul style="list-style-type: none"> <li>✓ describe the simple functions of the basic parts of the digestive system in humans</li> <li>✓ identify the different types of teeth in humans and their simple functions</li> <li>✓ construct and interpret a variety of food chains, identifying producers, predators and prey.</li> </ul> <p><b>States of Matter</b></p> <ul style="list-style-type: none"> <li>✓ compare and group materials together, according to whether they are solids, liquids or gases</li> <li>✓ 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)</li> <li>✓ identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</li> </ul> <p><b>Sound</b></p> <ul style="list-style-type: none"> <li>✓ identify how sounds are made, associating some of them with something vibrating</li> <li>✓ recognise that vibrations from sounds travel through a medium to the ear</li> <li>✓ find patterns between the pitch of a sound and features of the object that produced it</li> <li>✓ find patterns between the volume of a sound and the strength of the vibrations that produced it</li> <li>✓ recognise that sounds get fainter as the distance from the sound source increases.</li> </ul> <p><b>Electricity</b></p> <ul style="list-style-type: none"> <li>✓ identify common appliances that run on electricity</li> <li>✓ construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</li> <li>✓ 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</li> <li>✓ recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</li> <li>✓ recognise some common conductors and insulators, and associate metals with being good conductors.</li> </ul>

## Disciplinary Knowledge

### (Working scientifically)

#### Rocks

- ✓ asking relevant questions and using different types of scientific enquiries to answer them
- ✓ 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
- ✓ identifying differences, similarities or changes related to simple scientific ideas and processes
- ✓ using straightforward scientific evidence to answer questions or to support their findings.

#### Animals including Humans

- ✓ asking relevant questions and using different types of scientific enquiries to answer them
- ✓ 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
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- ✓ identifying differences, similarities or changes related to simple scientific ideas and processes
- ✓ using straightforward scientific evidence to answer questions or to support their findings.

#### Forces & Magnets

- ✓ asking relevant questions 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
- ✓ using straightforward scientific evidence to answer questions or to support their findings.

#### Light

- ✓ asking relevant questions 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

#### Living Things & Their Habitats

- ✓ asking relevant questions and using different types of scientific enquiries to answer them
- ✓ 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
- ✓ identifying differences, similarities or changes related to simple scientific ideas and processes
- ✓ using straightforward scientific evidence to answer questions or to support their findings.

#### Animals including Humans

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#### States of Matter

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- ✓ recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
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- ✓ identifying differences, similarities or changes related to simple scientific ideas and processes
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#### Sound

- ✓ asking relevant questions and using different types of scientific enquiries to answer them
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- ✓ making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers

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<h2>Vocabulary</h2>	<p><b><u>Animals including humans</u></b>  Nutrients, nutrition, carbohydrates, protein, fats, vitamins, minerals, sugars, water, fibre, skeleton, bones, joints, muscles, skull, ribs, spine, endoskeleton, exoskeleton, hydrostatic skeleton, vertebrates, invertebrates, muscles, contract, relax, support, protect, move</p> <p><b><u>Forces and Magnets</u></b>  Force, push, pull, twist friction, surface, magnet, magnetic, magnet, strength, magnetic field, pole, north, south, attract, repel, compass, bar magnet, ring magnet, button magnet, horseshoe magnet, metal, iron, steel</p> <p><b><u>Light</u></b>  Light, light source, dark, absence of light reflect, ray, mirror, bounce, visible, beam, sun, glare, travel, straight, opaque, shadow, block, transparent, translucent, shiny, matt, surface, mirror, sunlight, dangerous</p> <p><b><u>Plants</u></b>  Flower, seed, leaf, stem, roots, petal, pollen, life cycle, dispersal, fertilisation, germination, ovary, ovule, sepal, stamen, anther, filament, stigma, style, photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal)</p> <p><b><u>Rocks and soils</u></b>  Rocks, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, igneous, metamorphic, sedimentary, permeable, impermeable, absorb water, marble, chalk, granite, sandstone, slate, chemical fossil, body fossil, trace fossil, cast fossil, mould fossil, replacement fossil, extinct, organic matter, soil, peat, sandy/chalk/clay soil, weathered</p>	<p><b><u>Animals including humans</u></b>  Digestive system, tongue, mouth, teeth, oesophagus, stomach, gall bladder, small intestine, pancreas, rectum, anus, large intestine, liver, duodenum, tooth, canine, incisor, molar, premolar, producer, consumer, carnivore, herbivore, omnivore</p> <p><b><u>Electricity</u></b>  electric current, appliances, mains, crocodile clips, wires, bulb, battery cell, battery holder, motor, buzzer, switch, conductor, electrical insulator.</p> <p><b><u>Living things and their habitats</u></b>  Environment, flowering, non-flowering, plants, animals, vertebrates, fish, amphibians, reptiles, mammals, invertebrate, human impact, nature reserves, deforestation, positive, negative</p> <p><b><u>Sound</u></b>  volume, quiet, loud, faint, ear, pitch, high, low, instruments, bang, blow, shake, pluck, soundwave, vibrations, insulation, sound source, decibel</p> <p><b><u>State of matter</u></b>  Solid, liquid, gas, particles, state, materials, properties, matter, melt, freeze, water, ice, temperature, process, condensation, evaporation, water vapour, energy, precipitation, collection,</p>