



# Pear Tree Primary School

## Science Curriculum Planning KS2 Years Three & Four Being Our Best Selves End points

Year Three Topic	End Points	Key Vocabulary
Plants	<p>I can explain that many plants, but not all, have roots, stems/trunks, leaves and flowers/blossom.</p> <p>I know that:</p> <ul style="list-style-type: none"><li>• The roots absorb water and nutrients from the soil and anchor the plant in place.</li><li>• The stem transports water and nutrients/minerals around the plant and holds the leaves and flowers up in the air to enhance photosynthesis, pollination and seed dispersal.</li><li>• The leaves use sunlight and water to produce the plant's food.</li></ul> <p>I can explain that some plants produce flowers which enable the plant to reproduce.</p> <p>I can explain that pollen, which is produced by the male part of the flower, is transferred to the female part of other flowers (pollination). This forms seeds, sometimes contained in berries or fruits which are then dispersed in different ways.</p> <p>I can explain that different plants require different conditions for germination and growth.</p>	Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal)
Animals Including Humans	I can explain that animals, unlike plants which can make their own food, need to eat in order to get the nutrients they need.	Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones,

	<p>I can explain that food contains a range of different nutrients – carbohydrates (including sugars), protein, vitamins, minerals, fats, sugars, water – and fibre that are needed by the body to stay healthy. A piece of food will often provide a range of nutrients.</p> <p>I can explain how humans, and some other animals, have skeletons and muscles which help them move and provide protection and support.</p>	<p>muscles, support, protect, move, skull, ribs, spine, muscles, joints</p>
Rocks	<p>I can explain rock is a naturally occurring material. That there are different types of rock e.g. sandstone, limestone, slate etc. which have different properties. Rocks can be hard or soft. They have different sizes of grain or crystal. They may absorb water. Rocks can be different shapes and sizes (stones, pebbles, boulders).</p> <p>I can explain that soils are made up of pieces of ground down rock which may be mixed with plant and animal material (organic matter). The type of rock, size of rock pieces and the amount of organic matter affect the property of the soil.</p> <p>I can explain how some rocks contain fossils. Fossils were formed millions of years ago. When plants and animals died, they fell to the seabed. They became covered and squashed by other material. Over time the dissolving animal and plant matter is replaced by minerals from the water.</p>	<p>Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil</p>
Light	<p>I can explain how we see objects because our eyes can sense light. Dark is the absence of light. We cannot see anything in complete darkness. Some objects, for example, the sun, light bulbs and candles are sources of light. Objects are easier to see if there is more light. Some surfaces reflect light. Objects are easier to see when there is less light if they are reflective.</p> <p>I can explain that the light from the sun can damage our eyes and therefore we should not look directly at the sun and can protect our eyes by wearing sunglasses or sunhats in bright light.</p> <p>I can explain that shadows are formed on a surface when an opaque or translucent object is between a light source and the surface and blocks some of the light. The size of the shadow depends on the position of the source, object and surface.</p>	<p>light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous</p>
Forces and magnets	<p>I can explain that a force is a push or a pull.</p> <p>I can explain that when an object moves on a surface, the texture of the surface and the object affect how it moves. It may help the object to move better or it may hinder its movement e.g. ice skater compared to walking on ice in normal shoes.</p>	<p>Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic</p>

	<p>I can explain that for some forces to act, there must be contact e.g. a hand opening a door, the wind pushing the trees. Some forces can act at a distance e.g. magnetism. The magnet does not need to touch the object that it attracts.</p> <p>I can explain a magnet attracts magnetic material. Iron and nickel and other materials containing these, e.g. stainless steel, are magnetic.</p> <p>I can explain the strongest parts of a magnet are the poles. Magnets have two poles – a north pole and a south pole. If two like poles, e.g. two north poles, are brought together they will push away from each other – repel. If two unlike poles, e.g. a north and south, are brought together they will pull together – attract.</p>	<p>material, metal, iron, steel, poles, north pole, south pole</p>
<b>Year Four Topic</b>	<b>End Point</b>	<b>Key Vocabulary</b>
<p>Living things and their habitats</p>	<p>I can explain living things can be grouped (classified) in different ways according to their features.</p> <p>I can use classification keys to identify and name living things.</p> <p>I can explain living things live in a habitat which provides an environment to which they are suited (Year 2 learning). These environments may change naturally e.g. through flooding, fire, earthquakes etc. Humans also cause the environment to change. This can be in a good way (i.e. positive human impact, such as setting up nature reserves) or in a bad way (i.e. negative human impact, such as littering). These environments also change with the seasons; different living things can be found in a habitat at different times of the year.</p>	<p>Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate</p>
<p>Animals, including humans</p>	<p>I can explain food enters the body through the mouth. Digestion starts when the teeth start to break the food down. Saliva is added and the tongue rolls the food into a ball. The food is swallowed and passes down the oesophagus to the stomach. Here the food is broken down further by being churned around and other chemicals are added.</p> <p>I can explain that the food passes into the small intestine. Here nutrients are removed from the food and leave the digestive system to be used elsewhere in the body. The rest of the food then passes into the large intestine. Here the water is removed for use elsewhere in the body. What is left is then stored in the rectum until it leaves the body through the anus when you go to the toilet.</p>	<p>Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars, herbivore, carnivore, omnivore, producer, predator, prey, food chain</p>

	<p>I can explain that humans have four types of teeth: incisors for cutting; canines for tearing; and molars and premolars for grinding (chewing).</p> <p>I can explain that living things can be classified as producers, predators and prey according to their place in the food chain.</p>	
States of matter	<p>I can explain that a solid keeps its shape and has a fixed volume. A liquid has a fixed volume but changes in shape to fit the container. A liquid can be poured and keeps a level, horizontal surface. A gas fills all available space; it has no fixed shape or volume. Granular and powdery solids like sand can be confused with liquids because they can be poured, but when poured they form a heap and they do not keep a level surface when tipped. Each individual grain demonstrates the properties of a solid.</p> <p>I can explain that melting is a state change from solid to liquid. Freezing is a state change from liquid to solid. The freezing point of water is 0°C. Boiling is a change of state from liquid to gas that happens when a liquid is heated to a specific temperature and bubbles of the gas can be seen in the liquid. Water boils when it is heated to 100°C. Evaporation is the same state change as boiling (liquid to gas), but it happens slowly at lower temperatures and only at the surface of the liquid. Evaporation happens more quickly if the temperature is higher, the liquid is spread out or it is windy. Condensation is the change back from a gas to a liquid caused by cooling.</p> <p>I can explain the water cycle and recognise that water at the surface of seas, rivers etc. evaporates into water vapour (a gas). This rises, cools and condenses back into a liquid forming clouds. When too much water has condensed, the water droplets in the cloud get too heavy and fall back down as rain, snow, sleet etc. and drain back into rivers etc. This is known as precipitation.</p>	Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle
Sound	<p>I can explain that a sound produces vibrations which travel through a medium from the source to our ears. Different mediums such as solids, liquids and gases can carry sound, but sound cannot travel through a vacuum (an area empty of matter). The vibrations cause parts of our body inside our ears to vibrate, allowing us to hear (sense) the sound.</p> <p>I can explain that the loudness (volume) of the sound depends on the strength (size) of vibrations which decreases as they travel through the medium. Therefore,</p>	Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation

	<p>sounds decrease in volume as you move away from the source. A sound insulator is a material which blocks sound effectively.</p> <p>I can explain that pitch is the highness or lowness of a sound and is affected by features of objects producing the sounds. For example, smaller objects usually produce higher pitched sounds.</p>	
Electricity	<p>I can explain that many household devices and appliances run on electricity. Some plug in to the mains and others run on batteries.</p> <p>I can explain that an electrical circuit consists of a cell or battery connected to a component using wires. If there is a break in the circuit, a loose connection or a short circuit, the component will not work. A switch can be added to the circuit to turn the component on and off.</p> <p>I can explain that metals are good conductors so they can be used as wires in a circuit. Non-metallic solids are insulators except for graphite (pencil lead). Water, if not completely pure, also conducts electricity.</p>	<p>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</p>

## Working scientifically skills Year 3 & 4 End points

### Asking relevant questions and using different types of scientific enquiries to answer them

- I can use my prior knowledge when asking questions. I can independently use a range of question stems. Where appropriate, I answer these questions.
- I can answer questions posed by my teacher.
- Given a range of resources, I can decide for myself how to gather evidence to answer the question. I can recognise when secondary sources can be used to answer questions that cannot be answered through practical work. I can identify the type of enquiry that I have chosen to answer their question.

### Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers

- I can make systematic and careful observations.
- I can use a range of equipment for measuring length, time, temperature and capacity. I can use standard units for their measurements.

### Setting up simple practical enquiries, comparative and fair tests

- I can select from a range of practical resources to gather evidence to answer questions generated by myself or my teacher.
- I can follow my plan to carry out: observations and tests to classify; comparative and simple fair tests; observations over time; and pattern seeking.

#### Explanatory note

A comparative test is performed by changing a variable that is qualitative e.g. the type of material, shape of the parachute. This leads to a ranked outcome.

A fair test is performed by changing a variable that is quantitative e.g. the thickness of the material or the area of the canopy. This leads to establishing a causative relationship.

### 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

- I can sometimes decide how to record and present evidence. I can record my observation e.g. using photographs, videos, pictures, labelled diagrams or writing. I can record my measurements e.g. using tables, tally charts and bar charts (given templates, if required, to which I can add headings). I can record classifications e.g. using tables, Venn diagrams, Carroll diagrams.
- When supported, I can present the same data in different ways in order to help with answering the question.

### Using straightforward scientific evidence to answer questions or to support their findings

- I can answer my own and others' questions based on observations I have made, measurements I have taken or information I have gained from secondary sources. My answers are consistent with the evidence.

### Identifying differences, similarities or changes related to simple scientific ideas and processes

- I can interpret my data to generate simple comparative statements based on my evidence. I can begin to identify naturally occurring patterns and causal relationships.

### Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions

- I can draw conclusions based on my evidence and current subject knowledge.
- I can identify ways in which I adapted my method as I progressed or how I would do it differently if I repeated the enquiry.
- I can use my evidence to suggest values for different items tested using the same method e.g. the distance travelled by a car on an additional surface.

- Following a scientific experience, I can ask further questions which can be answered by extending the same enquiry.

**Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions**

- I can communicate my findings to an audience both orally and in writing, using appropriate scientific vocabulary.