

Year 3 Science

By the end of Year 3 children will be able to...	NC PoS	Key Learning & Vocabulary
Humans <ul style="list-style-type: none"> Talk about their skeleton and the job it does Identify and name some bones in the human skeletal system Talk about and identify the major muscles in the body. E.g. quads, hamstrings, calves, glutes, triceps, biceps Talk about how the muscles work Compare human and animal skeletons Investigate the food we eat in a week, as a class Explore how nutritious our current diet is and how we can improve it. 	<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 other animals have skeletons and muscles for support, protection and movement. 	Key Learning Animals, unlike plants which can make their own food, need to eat in order to get the nutrients they need. Food contains a range of different nutrients that are needed by the body to stay healthy – carbohydrates including sugars, protein, vitamins, minerals, fibre, fat, sugars, water. A piece of food will often provide a range of nutrients. Humans and some other animals have skeletons and muscles which help them move and provide protection and support Key Vocabulary exercise, heartbeat, breathing, hygiene, germs, disease, quads, hamstrings, calves, glutes, triceps, biceps, skeleton, muscles, food types - meat, fish, vegetables, bread, rice, pasta, nutritious, Comparative vocabulary – bigger, smaller taller, shorter, longer, narrower, wider, healthy, unhealthy.
Scientific enquiries for humans <ul style="list-style-type: none"> Are the children with the biggest feet the tallest? (Pattern seeking) What food have I eaten this week? (Observing over time) Do all animals have a skeleton? (Research) How can you use exercise to keep our muscles strong and healthy? (Research) How can I stay safe in the sun? (Research) 		
Key experiences <ul style="list-style-type: none"> Looking at real life x-rays of animals and humans Look at models of bones in the human skeletal system Make a healthy meal that will give them the correct and right amount of nutrition 		
Rocks <ul style="list-style-type: none"> Talk about how the Earth is constantly moving and reshaping itself & how rock formation is dynamic Name some famous rock formations, mountains and volcanoes around the world Describe how rocks are formed in a simple way Explore the environment and identify things made from rocks. E.g. stone Observe, describe and compare rocks. Group and order rocks (hardness, weight, length) Explain why rocks have been used for a specific purpose. E.g. Marble for statues Describe how fossils were formed. Observe, describe and compare soils (When teaching plants talk about the correct soil type) 	<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 recognise that soils are made from rocks and organic matter. 	Key Learning Rock is a naturally occurring material. 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). 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 piece and the amount of organic matter affect the property of the soil. 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. Key Vocabulary 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
Scientific enquiries for rocks <ul style="list-style-type: none"> How have the rocks/gravestones/buildings/cliffs around us changed over time? (Observing over time) What treasures can I find by exploring underground? (Identifying & classifying) Why is Mary Anning important to Palaeontologists? (Research) What gifts do rocks, gems and minerals give us? (Research) 		
Key experiences <ul style="list-style-type: none"> Looking at a variety of different types of rocks, fossils and soils (4 senses) H&S – Safe soil – compost from garden centres <ul style="list-style-type: none"> Explore the school grounds at different types of rocks (buildings and on the ground) 		
Forces and magnets <ul style="list-style-type: none"> Explore forces in the environment E.g. playing with toys, kicking/throwing balls, opening doors, climbing. Make observations on how we use forces in everyday life. Describe forces and their effect on things Spot and talk about simple patterns in our observations E.g. the harder the kick the further the ball went. 	<ul style="list-style-type: none"> compare how things move on different surfaces 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 	Key Learning A force is a push or a pull. 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. A magnet attracts magnetic material. Iron and nickel and other materials containing these e.g. stainless steel, are magnetic. The strongest parts of a magnet are the poles. Magnets have two poles – a north pole

<ul style="list-style-type: none"> • Measure forces using a force meter and record data in a table. • Investigate how things move on different surfaces • Observe and describe magnetic forces • Test objects to see if they are magnetic 	<ul style="list-style-type: none"> • describe magnets as having two poles • predict whether two magnets will attract or repel each other, depending on which poles are facing. 	<p>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>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>Key Vocabulary 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 pole</p>
<p>Scientific enquiries for forces & magnets</p> <ul style="list-style-type: none"> • Which materials are magnetic? (Identifying & classifying) • Which is the strongest magnet? (Comparative/fair testing) • How are magnets used in everyday life? (Research) • How do objects move across different surfaces? (Comparative/Fair Testing) 		
<p>Key experiences</p> <ul style="list-style-type: none"> • Explore different types magnets and play around with what they can do 		
<p>Plants</p> <ul style="list-style-type: none"> • Talk about the things that plants give us • Observe, describe and compare plants • Measure plants • Describe the functions of parts of a plant • Describe how a variety of plants need different things to live • Describe the life cycle of plants and the role of the flower 	<ul style="list-style-type: none"> • identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers • 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 • investigate the way in which water is transported within plants • explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. 	<p>Key Learning Many plants, but not all, have roots, stems/trunks, leaves and flowers/blossom. The roots absorb water and nutrients from the soil and anchor the plant in place. 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. The leaves use sunlight and water to produce the plant's food. Some plants produce flowers which enable the plant to reproduce. 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. Different plants require different conditions for germination and growth</p> <p>Key Vocabulary pollen, insect/wind pollination, seed formation, seed dispersal – wind dispersal, animal dispersal, water dispersal</p>
<p>Scientific enquiries for plants</p> <ul style="list-style-type: none"> • Do the biggest fruits have the most seeds? (Pattern seeking) • How do our plants change over the year? (Observing over time) • What effects how well our plants grow? (Comparative/fair test) • How long does it take to change the colour of a carnation using food colouring? (Observing over time) • Do all plants need water, light and warmth to grow? (Research) 		
<p>Key experiences</p> <ul style="list-style-type: none"> • Growing plants in different conditions • Exploring the schools ground and observing different plants • Looking at different fruits and their seeds 		
<p>Light</p> <ul style="list-style-type: none"> • Talk about how light helps us in everyday life • Name some sources of light • Talk about materials that reflect light and how this can be useful/not useful • Talk about how dark is the absence of light • Talk about how to protect our eyes from the sun and why this is important • Explain how to make a variety of shadows e.g. vary size, clarity and shape 	<ul style="list-style-type: none"> • recognise that they need light in order to see things and that dark is the absence of light • notice that light is reflected from surfaces • recognise that light from the sun can be dangerous and that there are ways to protect their eyes • recognise that shadows are formed when the light from a light source is blocked by an opaque object • find patterns in the way that the size of shadows change. 	<p>Key Learning 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. 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. 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>Key Vocabulary Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous</p>
<p>Scientific enquiries for light</p> <ul style="list-style-type: none"> • How can I stay safe in the dark? (comparative and fair testing) • Why can't we see in the dark? Which things give us light? Does everything have a shadow? (Identifying and classifying) • How can the size of shadows be changed? The nearer to the torch, the bigger the shadow. True or false? (Pattern seeking) 		

- What information can I get from shadows? (Observing over time)
- In ancient times how were shadows used to tell the time? (Research)
- How can I stay safe in the sun? (Research)

Key experiences

- Creating different shadows using different light sources
- Watch a shadow puppet show (BGT act - attraction) and create own puppet show
- Go outside and drawing around shadow across the day

Working scientifically

- Observe, describe and compare using Key Stage 2 scientific vocabulary
- Group and order observations giving scientific reasons
- Ask scientific questions and use information/collect data to answer them
- Predict what might happen and begin to explain why using everyday ideas
- Measure in standard units
- Test out their own/someone else's ideas
- Plan a fair test with help
- Explain observations using cause and effect
- Draw simple tables and bar charts to record their own observations/data
- Talk about observations/results and begin to use scientific facts to explain them
- Find and talk about simple patterns in results
- Communicate findings in a variety of ways
- Talk about how to improve their own work

- 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
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.

Observe, describe, compare, fair test, variable, evidence, equipment, patterns, data, measurement (and all the units), predict, because, explain, table, bar chart