Class 2 Science Essential Knowledge

Cycle A (2024-2025)

Autumn 1: Plants (Y3)

Plants: By the end of this unit what should children know?
Identify and describe the functions of different parts of a flowering plant.
How to explore the requirements of plants for life and growth (air, light, water, nutrients from the soil).
The role that flowers play in the life cycle of plants, including pollinations, seed formation and seed dispersal,
Vocabulary – Absorb, Dispersal, Function, Germination, Pollination, Reproduction, Requirements, Transportation,

Autumn 2: Animals including Humans (Y3)

Animals, including Humans: By the end of this unit what should children know?
Identify those animals, including humans, need the right type and amount of nutrition.
Specific ways to improve their own diet so that it is more nutritionally balanced.
Identify that humans and some other animals have skeletons and muscles for support, protection and movement.
Vocabulary – Balanced, Carbohydrate, Dairy, Diet, Endoskeleton, Exoskeleton, Fibre, Hydrostatic skeleton, Invertebrate, Nutrition, Protein, Vertebrate

Spring 1: States of Matter (Y4)

States of Matter: By the end of this unit what should children know?
How to compare and group materials together, according to whether they are solids, liquids or gases.
That some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in °C.
The part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.
Vocabulary – Condensation, Cycle, Evaporation, Gas, Irreversible, Liquid, Particles, Precipitation, Reversible, Solid, Solidify, State, Vapour

Spring 2: *Living Things and Their Habitats (Y4)*

Living things and their Habitats: By the end of this unit what should children know?
How to group living things in their local environment in a variety of ways.
Make and use classification keys to group, identify and name plants and animals in their local environment and wider environment.
Know that environments can change and this can sometimes pose dangers to living things.
Vocabulary – Amphibian, Characteristics, Classify, Deforestation, Endangered, Environment, Extinct, Habitat, Human impact, Invertebrate, Mammal, Organism, Population, Sensitivity, Threat, Vertebrate

Summer: *Forces and Magnets (Y3)*

Forces and Magnets: By the end of this unit what should children know?
How to compare how things move on different surfaces
To notice that some forces need contact between 2 objects, but magnetic forces can act at a distance and only on certain materials.
How to 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
How to describe magnets as having 2 poles and accurately predict whether 2 magnets will attract or repel each other
Vocabulary – magnetism, orientation, repel, magnetic field, resistance, magnet, attract, poles, material, force, pull, push, surface, properties

Class 2 Science Essential Knowledge

Cycle B (2025-2026)

Autumn 1: Rocks (Y3)

Rocks: By the end of this unit what should children know?
That different kinds of rocks are grouped together based on their appearance and simple physical properties.
What fossils are and how they are formed when things that have lived are trapped within rock.
To know some of the fossils found within the Peak District, and why we find those specific fossils (trilobites, brachiopods, bivalve molluscs and coral)
That soils differ and are made from rocks and organic matter -
The different ways in which sedimentary (e.g. Sandstone), igneous (e.g. Granite) and metamorphic (e.g. Marble) rocks have formed, and examples of each.
What the Derbyshire Dome is, and how it forms the geology of the Peak District (Shale, Limestone and Sandstone).
Vocabulary – sedimentary, metamorphic, igneous, sandstone, shale, granite, chalk, limestone, marble, soil (peaty, clay, sandy), crystal, grain, permeable, impermeable.

Autumn 2: Light (Y3)

Light: By the end of this unit what should children know?
To know that light is needed in order to see things and that dark is the absence of light.
To know that the reflection of light is what makes materials 'shiny' or 'sparkly', rather than them being original sources, and how this links to the sun and moon.
To understand that visible light is just part of a wider spectrum.
To understand that light from the sun can be dangerous and there are a number of ways in which we can protect ourselves from the sun's dangers at Morley and in the wider world (UV levels/monitor, Slip, slop, slap, slide and shade, legionnaires hats). Locality Link – Radio Derby DJ Colin Bloomfield.
To recognise that shadows are formed when the light from a light source is blocked by an opaque object.
That shadows will change dependent on its distance from a light source and how this has been utilised by civilizations to indicate the notion of time.
Vocabulary – prism, refraction, infrared, opaque, translucent, wave, beam, speed of light, ultraviolet, spectrum, emit, lens, material, mirror, light source, absorb, shadow, block, transmit, transparent, light, dark, visible, reflection

Spring 1: *Sound (Y4)*

Sound: By the end of this unit what should children know?
That sounds originate from something vibrating and travel through a medium (either liquid, gas or solid) to the ear.
How the human ear converts vibrations in to sounds and how/why a hearing aid might be needed to assist in helping people to hear.
That patterns exist between the pitch of a sound and features of the object that has produced it.
That patterns exist between the volume of a sound and the strength of vibrations that produced it.
That sounds get fainter as the distance from the sound source increases.
How the characteristics of different musical instruments (e.g. Ukelele, flute) allows us to create a wide range of sounds through varying vibrations.
Vocabulary – sound, volume, loud, amplitude, quiet, travel, wave, particles, ear, high, low, pitch, energy, distance, vibrate, soundproof, absorb, music, vibration, instruments, hammer, anvil, ear drum, stirrup, cochlea, pinna, eustachian tube, cochlear implant, amplifier, speaker, earmold, ear hook, receiver, auditory nerve, ear lobe, transmitter

Spring 2: *Electricity (Y4)*

Electricity: By the end of this unit what should children know?
Some common appliances that run on mains electricity (televisions, lights, interactive whiteboards, microwaves, toasters, kettles, electric ovens).
Some portable appliances that run on a battery that has stored electricity after connection to mains electricity (tablets, phones, charging blocks, laptops)
How to construct a simple series electrical circuit, identifying (using pictorial representations) and naming its basic parts (including cells, wires, bulbs, switches and buzzers).
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 (including if a switch is open or closed)
Some common conductors and insulators (associating metals with being good conductors)
Vocabulary – electricity, appliance, battery, store, circuit, voltage, current, volt, amp, watt, cell, wire, bulb, switch, buzzer, loop, open, closed, conductor, insulator, metal

Summer 2: *Animals Including Humans (Y4)*

Animals Including Humans: By the end of this unit what should children know?
The simple functions of the basic parts of the digestive system in humans (specifically the mouth, tongue, teeth, oesophagus, stomach and intestines).
The different types of teeth in humans (incisor, canine, molar, wisdom) and their simple functions.
That humans are diphyodonts (only replacing teeth once in their life) alongside most mammals. Few animals like elephants, kangaroos and manatees are polyphyodonts).
What damages teeth (grinding, smoking, sugar, brushing too hard, coffee, alcohol) and how to look after them (brushing, flossing, healthy diet, braces, check-ups).
That ecosystems rely on food chains, consisting of producers, consumers, predators and prey.
How the human teeth/digestive system compares with that of a horse (Broomfield trip)
Vocabulary – saliva, enzymes, oesophagus, stomach, small intestine, large intestine, incisor, canine, molar, wisdom tooth, diphyodont, polyphyodont, bruxism (grinding), flossing, braces, consumer, producer, predator, prey, digestion