

Year 3 Topics: Animals including humans/ Plants / Rocks / Light / Forces and Magnets

Animals including humans

- I can identify that animals and humans need the right types of nutrition, that they cannot make their own food and they get nutrition from what they eat.
- I can identify that some animals and humans have skeletons and muscles for support, protection and movement.

Plants

- I can identify and describe the functions of different parts of flowering plants, roots, stem/trunk, leaves and flowers.
- I can explore the requirements of plants for life and growth (air, light, water, nutrients from soil and room) and how they vary from plant to plant.
- I can investigate water transportation in plants.
- I can explore the part that flowers play in the lifecycle of flowering plant including pollination, seed formation and seed dispersal.

Rocks

- I can compare and group different kinds of rocks based on appearance and physical properties.
- I can describe in simple terms how fossils are formed when things that have lived are trapped within rock.
- I can recognise that soils are made from rock and organic matter.

Light

- I can recognise that we need light to see things and that dark is the absence of light.
- I can notice that light is reflected off surfaces.
- I can recognise that light from the sun can be dangerous and that there are ways to protect our eyes.
- I can recognise that shadows are formed when light from a light source is blocked by an opaque object.
- I can find patterns in the way that the size of shadows change.

Forces and Magnets

- I can compare how things move on different surfaces. I can notice that some forces need contact between two objects but magnetic forces can act at a distance.
- I can observe how magnets attract or repel each other and attract some materials but not others.
- I can compare and group a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials.
- I can describe magnets as having two poles. I can predict whether two magnets will attract or repel each other, depending on which poles are facing.

KEY VOCABULARY
Animals : nutrients, muscles, vertebrate, invertebrate. **Plants**: evaporation, nutrients, pollination, seed dispersal, fertilisation. **Rocks**: fossilisation, sedimentary, igneous, metamorphic, permeable, impermeable. **Light**: light source, shadow, translucent, opaque, transparent. **Forces**: surface, friction, magnetic field, poles, attract, repel.

Year 4 Topics: Animals including humans/ Living things and habitats/ States of matter / Sound / Electricity

Animals, including humans

- I can describe human digestive system functions.
- I can identify types of teeth in humans and their functions.
- I can interpret a variety of food chains and identify producers, predators and prey.

Living Things and Habitats

- I can use classification keys to group, identify and name living things in their local and wider environment..
- I can recognise that environments can change and that this can pose dangers to living things

States of Matter

- I can compare and group materials according to whether they are solids, liquids or gases.
- I can observe that some materials change temperature when heated or cooled and measure or research the temperature at which this happens in degrees Celsius. .
- I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

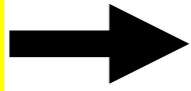
Sound

- I can identify how sounds are made associating some of them with something vibrating.
- I can recognise that vibrations from sounds travel through a medium to the ear.
- I can find patterns between the pitch of a sound and features of the object that produced it.
- I can find patterns between the volume of sound and the strength of the vibrations that produced it.
- I can recognise that sounds get fainter as the distance from the sound increases.

Electricity

- I can identify common appliances that run on electricity.
- I can construct a simple series electrical circuit, identifying and naming basic parts including cells, wires, bulbs, switches and buzzers.
- I can recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.
- I can recognise some common conductors and insulators and associate metals with being good conductors.

KEY VOCABULARY
Animals: digest, oesophagus, small intestine, large intestine, molar, premolar, incisor, canine, food chain. **Living things**: organisms, specimen, classification, characteristics, environment, extinct. **Matter**: solids, liquids, gases, evaporate, condense, water vapour, precipitation. **Sound**: eardrum, vibration, particles, amplitude, soundwave, pitch. **Electricity**: mains, appliances, circuit, battery, electrical conductor, electrical insulator.

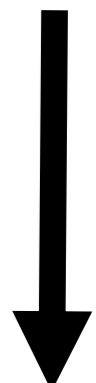


Progression in Science skills and knowledge at Banks Lane Junior School

Aims of Science National Curriculum

The national curriculum for science aims to ensure that all pupils:

- develop **scientific knowledge and conceptual understanding** through the specific disciplines of biology, chemistry and physics
- develop understanding of the **nature, processes and methods of science** through different types of science enquiries that help them to answer scientific questions about the world around them



Year 6 Topics: Animals including humans/ Living things and habitats/ Electricity / Light / Evolution and inheritance

Animals, including humans

- I can identify main parts of human circulatory system and describe the functions of the heart, blood vessels and blood.
- I can recognise the impact of diet, exercise, drugs and lifestyle on the way our bodies function.
- I can describe the way in which nutrients and water are transported within animals, including humans.

Living Things and habitats

- I can describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals.
- I can give reasons for classifying plants and animals based on specific characteristics.

Electricity

- I can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.
- I can compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on and off position of switches.
- I can use recognised symbols when representing a simple circuit in a diagram.

Light

- I can use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.
- I can explain that we see things because light travels from light sources to our eye or from light sources to objects and then to our eyes. I can use the ideas that light travels in straight lines to explain why shadows have the same shape as the object that cast them.

Evolution and inheritance

- I can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.
- I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents/ identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

Key Vocabulary
Animals: circulatory system, oxygenated blood, deoxygenated blood, drug, alcohol. **Living things**: microorganisms, bacteria, microscope. **Electricity**: voltage, amps, resistance, electrons, current. **Light**: refract, spectrum, absorption, dispersion. **Evolution**: adaptation, natural selection, adaptive traits, inherited traits.

Year 5 Topics: Animals including humans/ Living things and habitats/ Forces / Materials /Earth and Space

Animals, including humans

- I can describe changes as humans age.

Living Things and habitats

- I can describe differences in lifecycles of a mammal, an amphibian, an insect and a bird.
- I can describe the life process of reproduction in some plants and animals.

Forces

- I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.
- I can identify the effects of air resistance, water resistance and friction that act between moving surfaces.
- I can recognise that some mechanisms, including levers, pulley and gears, allow a smaller force to have a greater effect.

Materials

- I can compare and group everyday materials based on properties including hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets.
- I can separate mixtures by filtering, sieving and evaporating.
- I can give reason based on evidence from comparative and fair tests for particular uses of everyday materials including metals, wood and plastic.
- I can demonstrate that dissolving, mixing and changes of state are reversible changes.
- I can explain that some changes result in the formation of new materials, and this kind of change is usually not reversible.

Earth and Space

- I can describe the movement of Earth and other planets, relative to the Sun in the solar system.
- I can describe the movement of the Moon relative to the Earth.
- I can describe the Sun, Earth and Moon as approximately spherical bodies.
- I can use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.

Key Vocabulary
Animals: gestation, reproduction, puberty, menstruation, life expectancy. **Living Things**: asexual reproduction, sexual reproduction, gestation, metamorphosis. **Forces**: air resistance, water resistance, buoyancy, upthrust, gravitational pull. **Materials**: conductor, insulator. **Earth and Space**: planet, spherical bodies, rotate, axis, orbit, satellite, geocentric model, heliocentric model, astronomer.

