Buglawton Primary School

Scientific Knowledge and Conceptual Understanding Progression Chart

EYFS

Understanding the World: The Natural World

- Explore the natural world around them, making observations and drawing pictures of animals and plants
- Know some similarities and differences between the natural world around them, including the seasons and changing states of matter

Personal, Social and Emotional Development – managing self

- Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices

	Animals including humans
Year 1	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Compare a variety of common animals including fish, amphibians, reptiles, birds and mammals. Identify and name a variety of common animals that are carnivores, omnivores and herbivores. Identify, name, draw and label the basic parts of the human body. Identify which part of the body is associated with each sense. Compare humans.
Year 2	Find out about and describe the basic needs of animals, including humans, for survival Notice that animals, including humans, have offspring which grow into adults Describe the importance for humans to exercise. Describe the importance for humans to eat the right amounts of different types of food. Describe the importance for humans to have good hygiene.

	Describe the importance for humans to look after themselves.
Year 3	Identify that humans have bones for support, protection and movement. Identify that some other animals have bones for support, protection and movement. Understand that animals, including humans, need the right type of nutrition.
Year 4	Name the basic parts of the digestive system and describe their function. Identify the different teeth and describe their function. Construct and interpret a variety of food chains. Understand what producers, predators and prey are.
Year 5	Describe the human life cycle. Understand how a foetus develops in the womb. Describe what happens when I am a teenager. Describe what happens when I am a senior.
Year 6	Identify and name the main parts of the human circulatory system. Identify and name the main parts of the heart. Describe how water and nutrients are transported in humans. Identify how humans can live a healthy lifestyle.

Plants	
Year 1	Identify different plants. Identify and describe the basic structure of plants. Understand that plants can grow. Name a variety of common wild plants. Sort a variety of plants. Name a variety of common plants that we can eat. Identify, name and describe the basic structure of deciduous and evergreen trees.
Year 2	Identify that fruit, vegetables and herbs are types of plants that we eat. Observe and describe how seeds grow into mature plants. Know what plants need to grow and stay healthy. Explain the life cycle of plants.
Year 3	Explore the requirements of plants for life and growth. Identify, locate and describe the function of different parts of flowering plants. Identify, locate and describe the function of roots in plants.

	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. Explore the part that flowers play in the life cycle of flowering plants, including seed formation and seed dispersal.

Living things and their habitats	
Year 2	Explore and compare the differences between things that are living, dead, and things that have never been alive. Identify and name a variety of plants and animals in their habitats, including microhabitats. Identify that most living things live in a habitat to which they are suited. Construct a simple food chain.
Year 4	Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to help group, identify and name a variety of living things in my local environment. Recognise that environments can change and that this can sometimes pose dangers to living things.
Year 5	Discuss the seven life processes. Explain how mammals reproduce. Explain how animals reproduce Describe the differences in the life cycles of mammals, amphibians, reptiles, insects and birds. Explain the life cycle of plants.
Year 6	Describe how living things can be classified into broad groups. Understand how I can use classification keys to help group, identify and name a variety of living things. Describe how living things can be classified into broad groups. Understand that microorganisms are also living things. Describe how living things can be classified into broad groups. Know that scientists have developed different ways to classify living things.

Evolution	
Year 6	Identify how plants are adapted to their environment. Identify how animals are adapted to their environment. Explain natural selection and how it may lead to evolution. Explain how adaptations may lead to evolution. Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.

	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.

Materials	
Year 1	Identify a variety of everyday materials. Describe the physical properties of everyday materials. Distinguish between an object and the material from which it is made. Compare and group together a variety of everyday materials on the basis of their simple physical properties.
Year 2	Identify a variety of everyday materials. Distinguish between an object and the material it is made from. Investigate the properties of different materials.
Year 5	Compare and group materials according to whether they are solids, liquids or gases and name their properties. Describe the properties of material using scientific vocabulary. Investigate the thermal insulation of different materials. Compare and group materials based on their response to magnets. Know that some materials dissolve in a liquid to make a solution. Predict how I could separate mixtures. Explain why some changes are irreversible.

Rocks	
Year 3	Compare and group together different kinds of rocks on the basis of their appearance. Compare and group together different kinds of rocks on the basis of their physical properties. Explain how some rocks are formed. Explain how the Earth is made up of different layers of rocks and soils. Describe how fossils are formed when things that have lived are trapped within rock.

States of Matter	
Year 4	Identify solids, liquids and gases. Take accurate measurements using thermometers. Observe that some materials change state when they are heated or cooled. Identify the part played in evaporation and condensation in the water cycle.

	Associate the rate of evaporation with temperature.

Forces and Magnets	
Year 3	Compare how different things move. Compare how different objects move on surfaces. Explore how magnetic forces act at a distance. Compare and group various everyday materials based on whether they are attracted to a magnet. Predict whether two magnets will attract or repel each other, depending on which poles are facing. Record my findings using simple scientific vocabulary.
Year 5	Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and falling objects. Identify the effect of friction between moving surfaces. Identify the effect of air resistance. Identify the effect of water resistance. Recognise that some mechanisms including levers, pulleys and gears allow a similar force to have a greater impact.

Seasonal Changes	
Year 1	Observe and describe changes across all four seasons. Observe how day length varies. Describe weather associated with the seasons.

Earth and Space	
Year 5	Describe the planets in the solar system. Describe the Sun, Earth and Moon as approximately spherical bodies. Describe the movement of the Earth, and other planets, relative to the Sun in the solar system. Describe the movement of the Moon relative to the Earth. Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. Describe the movement of the Moon relative to the Earth.

Electricity	
Year 4	Identify the common appliances that use electricity.

	Construct a simple circuit and name the parts of the circuit. Identify if a bulb will light up in a circuit. Recognise common conductors and insulators. Investigate switches.
Year 6	Use symbols when drawing a simple circuit diagram. Associate the brightness of a lamp with the number of voltage of cells used in a circuit. Investigate variations in how components function. Name renewable and non-renewable sources of energy.

Sound	
Year 4	Identify how sounds are made, associating some of them with something vibrating. Recognise that vibrations from sounds travel through a medium to the ear. Find patterns between the pitch of a sound and features of the object that produced it. Find patterns between the volume of a sound and the strength of the vibrations that it produces.

Light	
Year 3	Recognise that there needs to be light in order to see things and that darkness 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 your eyes and skin from the sun. Recognise that shadows are formed when light from a light source is blocked by an opaque object. Know that shadows take on the shape of the opaque object. Predict where a shadow will form in relation to an opaque object and a light source. Find patterns in the way that the length of shadows change.
Year 6	Recognise that light appears to travel in straight lines. 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. Explain how the eye works. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. Explain how shadows change during the day.