Science Progression Map

St Margaret Clitherow Academy

Biology

Living Things

Foundation 1	Foundation 2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animals including Humans. Use all their hands-on exploration of natural materials. Begin to make sense of their own life-story and family's history. Understand the key features of the life cycle of a plant and an animal. Begin to understand the need to respect and care for the natural environment and all living things.	**Animals including Humans** Recognise some familiar animals Identify animals and sort them according to where they live. Recognise how animals behave as the seasons change. I can talk about the life cycles of animals and plants and recognise some key features of these. Talk about members of their immediate family and community. Name and describe people who are familiar to them. Recognise some environments that are different to the one in which they live.	**Animals, including Humans** Know the name of parts of the human body that can be seen (including the 5 senses) Know how to classify a range of animals by amphibian, reptile, mammal, fish and birds Know and classify animals by what they eat (carnivore, herbivore and omnivore) Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets	**All living things and their habitats** Match living things to their habitat Classify things by living, dead or never lived Know how a specific habitat provides for the basic needs of things living there (plants and animals) Name some different sources of food for animals Know about and explain a simple food chain **Animals, including Humans** Know the basic stages in a life cycle for animals, (including humans) Know why exercise, a balanced diet and good hygiene are important for humans	**Animals, including humans** Know about the importance of a nutritious, balanced diet Know how nutrients, water and oxygen are transported within animals and humans Know about the skeletal and muscular system of a human	**All living things and their habitats** Use classification keys to group, identify and name living things Know how changes to an environment could endanger living things **Animals, including humans** Identify and name the parts of the human digestive system Know the functions of the organs in the human digestive system Identify and know the different types of human teeth Know the functions of different human teeth Use and construct food chains to identify producers, predators and prey	**All living things and their habitats** Know the life cycle of different living things e.g. mammal, amphibian, insect and bird Know the differences between different life cycles Know the process of reproduction in plants Know the process of reproduction in animals. **Animals, including humans** Create a timeline to indicate stages of growth in humans	**All living things & their habitats** Classify living things into broad groups according to observable characteristics and based on similarities and differences. Know how living things have been classified Give reasons for classifying plants and animals in a specific way **Animals, Including humans** Identify and name the main parts of the human circulatory system Know the function of the heart, blood vessels and blood Know the impact of diet, exercise, drugs and lifestyle on health Know the ways in which nutrients and water are transported in animals, including humans **Evolution & Inheritance** Know how the Earth and living things have changed over time Know how fossils can be used to find out about the past Know about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents) Know how animals and plants are adapted to suit their environment Link adaptation over time to evolution Know about evolution and can explain what it is

Plants

Foundation 1	Foundation 2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Use all their senses in hands on exploration of natural materials. Explore collections of materials with similar	Talk about the life cycles of plants and recognise some key features of these. Understand what seeds need to grow and can talk	Know and name a variety of common wild and garden plants Know and name the petals, stem, leaves and root of a plant Know and name	Know and explain how seeds and bulbs grow into plants Know what plants need in order to grow and stay healthy (water, light &	Know the function of different parts of flowering plants and trees Know how water is transported within plants		Know the process of reproduction in plants.	

and/or different properties. Plant seeds and take care of growing plants. Understand the key features of a life cycle of a plant. Begin to understand the need to respect and care for the natural environment and all living things.	about how to care for them. Recognise some familiar plants.	the roots, trunk, branches and leaves of a tree.	suitable temperature)	Know the plant life cycle, especially the importance of flowers.			
Seasonal Changes							
Foundation 1	Foundation 2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Understand the key features of the life cycle of a plant and an animal.	Explore the natural world around them. Describe what they see, hear and feel whilst outside. Understand the effect of changing seasons on the natural world around them	Observe changes across the 4 seasons Observe and describe weather associated with the seasons and how day length varies		<u>Light</u> Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. (Y3 - Light)		<u>Earth and Space</u> Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky	

Chemistry

Chemical and Physical Changes

Foundation 1	Foundation 2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Talk about the difference between materials and changes they notice.	Explore the natural world around them.				<u>States of Matter.</u> Compare and group materials together, according to whether they are solids, liquids or gases Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	<u>Properties and changes of materials</u>. Know that some materials wi dissolve in liquid to form a solution, and describe how t recover a substance from a solution Demonstrate that dissolving, mixing and changes of state are reversible changes Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.	

Materials and their Properties

Foundation 1	Foundation 2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Use all their senses in hands-one exploration of natural materials. Explore collections of materials with similar and/pr different properties. Talk about the differences between materials and the changes they notice.	Explore the natural world around them. Describe what they see, hear and feel whilst outside.	Distinguish between an object and the material from which it is made Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock Describe the simple physical properties of a variety of everyday materials Compare and group together a variety of everyday materials on the basis of their simple physical properties.	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	Compare and group rocks based on their appearance and physical properties, giving reasons Know how soil is made and how fossils are formed <u>Forces and Magnets</u> Compare and group togethe a variety of everyday materials on the basis of if they are attracted to a magnet, and identify some magnetic materials	Compare and group materials together, according to whether they are solids, liquids or gases. Observe that some materials change state when they are heated or cooled and measure or research the temperature at which in degrees Celsius (0c) Know the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. <u>Electricity</u> Recognise some common conductors and insulators, and associate metals, with being good conductors.	Compare and group togethe everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets Know that some materials wi dissolve in liquid to form a solution, and describe how t recover a substance from a solution Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating Give reasons, based on evidence from comparative and fair tests, for the	

						particular uses of everyday materials, including metals, wood and plastic Demonstrate that dissolving, mixing and changes of state are reversible changes Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.	

Physics

Sound

Foundation 1	Foundation 2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Explore how things work.	Describe what they see, hear and feel whilst outside.	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.			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 produced it Recognise that sounds get fainter as the distance from the sound source increases.		

Light

Foundation 1	Foundation 2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Explore how things work. Talk about the differences in materials and the changes they notice.	Talk about what they see, hear, feel whilst outside.	<u>Animals, including Humans</u>. Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. <u>Materials.</u> Describe the simple physical properties of a variety of everyday materials.		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.		<u>Materials and their properties</u> Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.	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 that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them

Electricity

Foundation 1	Foundation 2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

Explain how things work.					Identify common appliances that run on electricity. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Identify 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. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. Recognise some common conductors and insulators, and associate metals with being good conductors		• Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. • Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. • Use recognised symbols when representing a simple circuit in a diagram

Physics

Forces

Foundation 1	Foundation 2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Explain how things work. Explore and talk about different forces they can feel. Talk about the differences in materials and the changes they notice.	Explore the natural world around them. Describe what they see, hear, feel whilst outside.		<u>Everyday Materials</u>. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	compare how things move on different surfaces notice that some forces need contact between 2 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 describe magnets as having 2 poles predict whether 2 magnets will attract or repel each other, depending on which poles are facing		Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Identify the effects of air resistance, water resistance and friction, that act between moving surfaces. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	

Earth and Space

Foundation 1	Foundation 2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Explore the natural world around them. Describe what they see, hear and feel whilst outside.	<u>Seasonal Change</u> Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.				**<u>Earth and Space</u>** 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. Describe the Sun, Earth and Moon as approximately spherical bodies. Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky	

Working Scientific

Foundation 1	Foundation 2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	• Explore outside and make some observations about what I see around me • Begin to ask questions and seek out information about things I observe • Begin to think of questions based around a prompt and can then engage with research to find out more • Make predictions about what I think might happen in a given situation and begin to give reasons for those predictions • Use some basic scientific vocabulary • Make observations about scientific processes I can see happening around me	• Ask simple questions recognising that they can be answered in different ways • Observe closely, using simple equipment • Perform simple tests • identify and classify • use observations and ideas to suggest answers to questions • Gather and record data to help in answering questions	• Ask simple questions recognising that they can be answered in different ways • Observe closely, using simple equipment • Perform simple tests identify and classify • Use observations and ideas to suggest answers to questions • Gather and record data to help in answering questions	• Ask relevant questions and using different types of scientific enquiries to answer them set up simple practical enquiries, comparative and fair tests • Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • Gather, record, classify and present data in a variety of ways to help in answering questions • Record findings using simple scientific language, • Drawings, labelled diagrams, keys, bar charts, and tables • Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • Identify differences, similarities or changes related to simple scientific ideas and processes • Use straightforward scientific evidence to answer questions or to support their findings	•Ask relevant questions and using different types of scientific enquiries to answer them set up simple practical enquiries, comparative and fair tests •Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers •Gather, record, classify and present data in a variety of ways to help in answering questions •Record findings using simple scientific language •Drawings, labelled diagrams, keys, bar charts, and tables Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions Identify differences, similarities or changes related to simple scientific ideas and processes Use straightforward scientific evidence to answer questions or to support their findings	• Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • Take measurements, using a range of scientific equipment, with increasing accuracy and precision • Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs • Use test results to make predictions to set up further comparative and fair tests • Report and present findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations • Identify scientific evidence that has been used to support or refute ideas or arguments	•Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary •Take measurements, using a range of scientific equipment, with increasing accuracy and precision •Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs •Use test results to make predictions to set up further comparative and fair tests •Report and present findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations •Identify scientific evidence that has been used to support or refute ideas or arguments