



Whitemoor Academy

E.Y.F.S. Science Knowledge Progression Map

How this document is to be used:

- During planning for the teaching of science the following document will support staff in ensuring coverage of the National Curriculum objectives for their year groups/phases as well as how science should progress as pupils move up the school.
- Learning objectives should, where possible, be copied from the knowledge bank below to ensure progression.

<u>Science topic</u>	<u>Areas of learning and development</u>	<u>Early learning goal</u>
Everyday Materials	See living things	
Plants	See living things	
Animals including humans.	<p>Physical development health and selfcare 40-60 Eats a healthy range of foodstuffs and understands need for variety in food. •Shows some understanding that good practices with regard to exercise, eating, sleeping and hygiene can contribute to good health. •Shows understanding of the need for safety when tackling new challenges and considers and manages some risks.</p>	<p>Early Learning Goal Children follow instructions involving several ideas or actions. They answer 'how' and 'why' questions about their experiences</p>
Living things and their habitats	<p>Understanding the world- The World 30-50 months •Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world. •Can talk about some of the things they have observed such as plants, animals, natural and found objects. •Talks about why things happen and how things work. •Developing an understanding of growth, decay and changes over time. •Shows care and concern for living things and the environment 40-60 months •Looks closely at similarities, differences, patterns and change.</p>	<p>Early Learning Goal Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate Habitats environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.</p>



Whitemoor Academy

Year 1/2 Knowledge Progression Maps

Rolling programme A

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Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Animals including humans To identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.	Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Plant trees)	To identify and name a variety of common animals that are carnivores, herbivores and omnivores .	Identify and describe the basic structure of a variety of common flowering plants including trees.	Notice that animals, including humans, have offspring which grow into adults.	Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene (Link with sport's day)
To describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets.	identify and name a variety of plants and animals in their habitats, including microhabitats.	describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food (Link class 3)	explore and compare the differences between things that are living, dead, and things that have never been alive	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. Practical In preparation for year 3.
Observing changes across a season and length of day. (Order trees for planting Term 2)	Observing changes across a season and length of day.	Observing changes across a season and length of day.	Observing changes across a season and length of day.	Observing changes across a season and length of day.	Observing changes across a season and length of day.



Whitemoor Academy

Year 1/2 Knowledge Progression Maps

Rolling programme B

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Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
<p>distinguish between an object and the material from which it is made.</p> <p>identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</p>	<p>Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</p> <p>Significant individuals- Mary Anning and William Buckland</p>	<p>Observe and describe how seeds and bulbs grow into mature plants.</p> <p>Significant individual – Rachel Carson.</p>	<p>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy</p>	<p>Find out about and describe the basic needs of animals including humans for survival (water, food and air)</p>	<p>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene (Link with sport's day)</p>
<p>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</p>	<p>find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</p>	<p>Materials and their uses.</p> <p>Investigating materials and suitability of materials, including wood, plastic, glass, metal, water and rock.</p> <p>Significant individuals e.g. Thomas Hancock.</p>	<p>identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other</p>	<p>recognise that light from the sun can be dangerous and that there are ways to protect their eyes</p>	<p>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</p> <p>3 bears Ogden</p>



Whitemoor Academy

Year 3/4 Knowledge Progression Maps
Rolling programme A

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<u>Term 1</u>	<u>Term 2</u>	<u>Term 3</u>	<u>Term 4</u>	<u>Term 5</u>	<u>Term 6</u>
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 their local and wider environment	compare and group together different kinds of rocks on the basis of their appearance and simple physical properties	Construct and interpret a variety of food chains, identifying producers, predators and prey. Link with class 2	recognise that environments can change and that this can sometimes pose dangers to living things (Present to class 2 following on from their topic)	identify how sounds are made, associating some of them with something vibrating recognise that vibrations from sounds travel through a medium to the ear	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. (Link with class 2)
compare how things move on different surfaces notice that some forces need contact between 2 objects, but magnetic forces can act at a distance	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.	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.	recognise that light from the sun can be dangerous and that there are ways to protect their eyes	Describe the simple functions of the basic parts of the digestive system in humans.



Whitemoor Academy

Year 3/4 Knowledge Progression Maps

Rolling programme B

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Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Identify that humans and some other animals have skeletons and muscles for support, protection and movement.	<p>recognise that they need light in order to see things and that dark is the absence of light</p> <p>notice that light is reflected from surfaces</p>	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)	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. (Class 2/3 to present their findings)	<p>Identify and describe the functions of different parts of the flowering plants: roots, stem/ trunk, leaves and flowers. (Look at class two's plants in plastic transparent containers</p> <p>To investigate the way in which water is transported within plants.</p>	Explore the part that flowers play in the life cycle of flowering plants, including pollination and seed formation and dispersal.
Identify the different types of teeth in humans and their simple functions	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 (Link in with Class 4)	identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	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	<p>recognise that light from the sun can be dangerous and that there are ways to protect their eyes</p> <p>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</p>	<p>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</p> <p>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</p>



Whitemoor Academy

Year 5/6 Knowledge Progression Maps
Rolling programme A

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Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
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	use the idea that -light travels in straight lines to explain why shadows have the same shape as the objects that cast them	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	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	Describe the changes as humans develop to old age	identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood
give reasons for classifying plants and animals based on specific characteristics (Present to class 3)	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	know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution	identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution	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	recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function describe the ways in which nutrients and water are transported within animals, including humans



Whitemoor Academy

Year 5/6 Knowledge Progression Maps

Rolling programme B

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Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating	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	recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect	use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them	describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird describe the life process of reproduction in some plants and animals.	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
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	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 (Link in with class 3)	give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic (Project with class 2)	recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago	recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents	use recognised symbols when representing a simple circuit in a diagram

