



## Science overview 2021

EYFS			
	2 Year Olds	Nursery	Reception
<b>What science we want the children at The Academy at St James to leave our EYFS setting with...</b>	<ul style="list-style-type: none"><li>• Have an awareness that things are different and the same</li><li>• Have explored the world around them, playing in different weather</li></ul>	<ul style="list-style-type: none"><li>• Are aware of similarities and differences</li><li>• Can remember key events from their experiences</li><li>• Have explored the world around them using their senses</li></ul>	<ul style="list-style-type: none"><li>• Being able to explain similarities and differences</li><li>• Remembering and discussing key events from their experiences</li><li>• Know key places in the community and their purpose</li><li>• Can use their senses to explore and describe</li></ul>

Key stage 1						
Year 1/ 2 A	Autumn		Spring		Summer	
	Human Body	Living Things and Their Habitats	Everyday Materials	Plants (Used for Medicine)	Forces	Animals Including Humans
	<i>Key Question: What do our bodies need to survive?</i>	<i>Key Question: Are the living things and habitats in the UK the same as Kenya?</i>	<i>Key Question: Which of our everyday materials are flammable?</i>	<i>Key Question: How are plants used for medicine?</i>	<i>Key Question: How can we make our vehicles move?</i>	<i>Key Question: What animals do we need to care for in our world?</i>
	<p>Outcome: Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</p> <p>Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</p>	<p>Outcome: 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</p> <p>identify and name a variety of common animals that are carnivores, herbivores and omnivores</p>	<p>Outcome: 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>describe the simple physical properties of a variety of everyday materials</p> <p>identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</p>	<p>Outcome: identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</p> <p>identify and describe the basic structure of a variety of common flowering plants, including trees</p>	<p>Outcome: Be able to explain the forces push/pull.</p> <p>Investigate how objects move over different surfaces (friction)</p>	<p>Outcome: identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</p> <p>notice that animals, including humans, have offspring which grow into adults</p>
Year 1/2 B	Plants	Living Things and Their Habitats	Animals Including Humans	Human Body	Everyday Materials (Floating and Sinking)	Living Things and Their Habitats
	<i>Key Question: How can we grow our own 'Wonder Flower?'</i>	<i>Key Question: How do the habitats around us change?</i>	<i>Key Question: What makes a dragon a dragon?</i>	<i>Key Question: What makes the</i>	<i>Key Question: What material would make the best boat for Harry?</i>	<i>Key Question: Are habitats under the sea the same as on land?</i>
	<p>Outcome: observe and describe how seeds and bulbs grow into mature plants</p> <p>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy</p>	<p>Outcome: identify and name a variety of plants and animals in their habitats, including microhabitats</p> <p>Explore and compare the differences between things that are living, dead, and things that have never been alive</p>	<p>Outcome: identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</p> <p>describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets)</p>	<p>Outcome: 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>Outcome: identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</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>Outcome: identify and name a variety of plants and animals in their habitats, including microhabitats</p>
Ongoing	<p>Seasonal Changes, Scientific Exploration – Every KS1 Class to have a Seasonal Change Book to update daily</p> <ul style="list-style-type: none"> <li>observe changes across the 4 seasons</li> <li>observe and describe weather associated with the seasons and how day length varies</li> </ul>					

Key stage 2						
Year 3/4 A	Autumn		Spring		Summer	
Year 3/4 A	Animals Including Humans (Digestive System and Teeth)	Rocks	Forces/Magnets	Sound	Plants	States of Matter
	<i>Key Question: Did the diet of the Stone Age people need to be different to modern day?</i>	<i>Key Question: How were the rocks formed and used at Scare Brae?</i>	<i>Key Question: How does an earthquake happen?</i>	<i>Key Question: How loud is an earthquake? How loud is volcanic eruption?</i>	<i>Key Question: What plants could be found on the River Nile?</i>	<i>Key Question: How does the water cycle help the River Nile?</i>
	<p>Outcome: 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.</p> <p>describe the simple functions of the basic parts of the digestive system in humans</p> <p>identify the different types of teeth in humans and their simple functions</p> <p>construct and interpret a variety of food chains, identifying producers, predators and prey</p>	<p>Outcome: compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</p> <p>describe in simple terms how fossils are formed when things that have lived are trapped within rock</p> <p>recognise that soils are made from rocks and organic matter</p>	<p>Outcome: compare how things move on different surfaces</p> <p>notice that some forces need contact between 2 objects, but magnetic forces can act at a distance</p> <p>observe how magnets attract or repel each other and attract some materials and not others</p> <p>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</p> <p>describe magnets as having 2 poles</p> <p>predict whether 2 magnets will attract or repel each other, depending on which poles are facing</p>	<p>Outcome: Identify how sounds are made, associating some of them with something vibrating</p> <p>recognise that vibrations from sounds travel through a medium to the ear</p> <p>find patterns between the pitch of a sound and features of the object that produced it</p> <p>find patterns between the volume of a sound and the strength of the vibrations that produced it</p> <p>recognise that sounds get fainter as the distance from the sound source increases</p>	<p>Outcome: identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</p> <p>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</p> <p>investigate the way in which water is transported within plants</p> <p>explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</p>	<p>Outcome: identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</p>
Year 3/4 B	Animals Including Humans		States of Matter	Living Things and Their Habitats	Electricity	Light
	<i>Key Question: Were the people in the Stone Age the same as we are today?</i>		<i>Key Question: What happened with Mount Vesuvius erupted?</i>	<i>Key Question: How is deforestation and global warming affecting the world around us?</i>	<i>Key Question: Can you design an electrical device that would help Howard Carter?</i>	<i>Key Question: How did Howard Carter use light to discover the tomb of Tutankhamun?</i>
	<p>Outcome: identify that humans and some other animals have skeletons and muscles for support, protection and movement</p>		<p>Outcome: compare and group materials together, according to whether they are solids, liquids or gases</p> <p>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)</p>	<p>Outcome: recognise that living things can be grouped in a variety of ways</p> <p>explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</p> <p>recognise that environments can change and that this can sometimes pose dangers to living things</p>	<p>Outcome: identify common appliances that run on electricity</p> <p>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</p> <p>recognise some common conductors and insulators, and associate metals with being good conductors</p>	<p>Outcome: 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> <p>recognise that light from the sun can be dangerous and that there are ways to protect their eyes</p> <p>recognise that shadows are formed when the light from a light source is blocked by an opaque object</p> <p>find patterns in the way that the size of shadows change</p>
Ongoing	Scientific Enquiry					

Key stage 2						
Key stage 2	Autumn		Spring		Summer	
Year 5	Early Islamic Civilisations Forces (resistance - friction, gravity etc.)	Earth and Space	Living things and their habitats	Animals Including Humans	Properties of Materials	Forces
	<i>Key Question: How did traders transport heavy loads across the Silk Road?</i>	<i>Key Question: What makes our universe 'Cosmic'?</i>	<i>Key Question: How does the world around us change?</i>	<i>Key Question: How do we develop as we age?</i>	<i>Key Question: What materials made the best Viking long ships? How would they be made in our modern world and why?</i>	<i>Key Question: How could we improve Viking and Anglo Saxon battles with levers, gears and pulleys?</i>
	Outcome: identify the effects of air resistance, water resistance and friction, that act between moving surfaces	Outcome: 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	Outcome: 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	Outcome: describe the changes as humans develop to old age	Outcome 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  know that some materials will dissolve in liquid to form a solution, and describe how to 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	Outcome: explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object  recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect
Ongoing	Scientific Enquiry					

Key stage 2						
Key stage 2	Autumn		Spring		Summer	
Year 6	Evolution and Inheritance Classification	Circulatory System	Fossils	Electricity	Light	Animals Including Humans
	<i>Key Question: What evidence may Shackleton find on his journey or evolution and inheritance?</i>	<i>Key Question: How would we keep our body functioning at the top of Mount Everest?</i>	<i>Key Question: What fossils may be found at Whitby?</i>	<i>Key Question: Can you make a bulb bright enough to keep Dracula away?  Can you make Dracula's eyes flash?</i>	<i>Key Question: How can you create the best blackout?</i>	<i>Key Question: How can we best look after our bodies?</i>
	<p>Outcome: recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</p> <p>identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</p>	<p>Outcome: identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</p> <p>describe the ways in which nutrients and water are transported within animals, including humans</p>	<p>Outcome: recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</p>	<p>Outcome: associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</p> <p>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</p> <p>use recognised symbols when representing a simple circuit in a diagram</p>	<p>Outcome: recognise that light appears to travel in straight lines</p> <p>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</p> <p>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</p> <p>use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them</p>	<p>Outcome: recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</p> <p>describe the ways in which nutrients and water are transported within animals, including humans</p>
Ongoing	Scientific Enquiry					