

Curriculum Big Picture for Subject

School	Victoria Park Primary Academy
Subject	Science

What are the Big Concepts and Ideas that we want children to learn about in this subject through their education?

<p>Physics</p> <ol style="list-style-type: none"> In existence around us there are a set of unbreakable rules that are all about matter (objects / masses made of particles – see Chemistry), forces and energy Forces are different kinds of pushes and pulls that act on all the matter that is all around us. Energy also exists all around us and cannot be created or destroyed <p>Chemistry</p> <ol style="list-style-type: none"> All matter that exists around us is made up of tiny particles or building blocks (linked to physics) The arrangement, movement and types of particles inform how the matter is made up. Matter can change if the arrangement of these particles changes. Sometimes these change for good, and other times the change is reversible. <p>Biology</p> <ol style="list-style-type: none"> Living things are special collections of matter that make copies of themselves (reproduce), use/make energy and grow. Living things on Earth come in a huge variety of different forms that are all related because they all came from the same starting point 4.5 billion years ago. The different kinds of life, animals, plants and microorganisms, have evolved over millions of generations into different forms in order to survive in the environments in which they live. <p>Earth Science</p> <ol style="list-style-type: none"> The Earth is one of eight planets that orbit the sun (a star) in our solar system. The Earth is tilted and spins on its axis leading to day and night, the seasons and the climate. The Earth is made up of several layers, including a relatively thin rocky surface which is divided into tectonic plates, and the movement of these plates leads to many geologic events (such as earthquakes and volcanoes) and geographical features (such as mountains.) – linked to geography

WHY do children learn what they are learning in each year and term?

	Autumn	Spring	Summer
<i>EYFS learning relevant to pupils, current environment and daily occurrences and seasons including:</i>			
Nursery	Seasons – Autumn Freezing and melting - Winter Senses – fruit tasting Floating and sinking Forest school – animals and habitats	Freezing and melting – Winter New growth – Spring Sound Materials Forest school – animals and habitats	Plants – Summer Farm animals – life cycles Habitats Forest school – animals and habitats
Reception	Water Human body Freezing and melting – Winter weather Fire – festivals linked to light Forest school – animals and habitats	Freezing and melting – Winter weather Water New growth of plants – Spring Fire – festivals linked to light Forest school – animals and habitats	Plants – Summer Materials – textures Forest school – animals and habitats
Key Stage 1			
Year 1	<p>Plants – related to Autumn and exploring environment around them, connected to geography and history within NICER (B1) Building blocks of biology. Starts schemata of seasonal changes by observing the Autumn to Winter weather.</p> <p>Everyday Materials (part 1) (P1, C1) – beginning to explore physical matter around us, building blocks of physics and chemistry.</p>	<p>Everyday Materials (part 2) – continued development of understanding objects and masses around us, progressing on to distinguish the difference between what an object is, what it is made of, and its properties.</p> <p>Animals including humans – focus on humans With age and relevance to learning for pupils in Year 1, we break down Animals including humans over the 2 terms so that pupils can start with learning about themselves and then progress onto making comparisons to other living beings. With schemata from plants, they will be able to distinguish that plants are different to animals.</p>	<p>Animals including Humans – focus on animals This learning progresses on from the Spring term when children have learnt about humans (themselves) and have a grounding to then compare to other animals. Whilst learning about locations (local area, including city and countryside, and the contrasting beach) they will look to identify animals that live in these different habitats.</p> <p>Seasonal Changes – continues learning from Autumn term by looking at Spring to Summer weather. Connected to NICER through looking at the beach and the weather during the summer. (ES2)</p>
Year 2	<p>Animals including Humans – in the Autumn term of Year 2, pupils cement their knowledge of animals including humans as commenced in Year 1. They work making direct comparisons between the needs of living things, and can do</p>	<p>Living Things and their habitats - this is taught in the term after animals including humans so that pupils can build their schemata from understanding what animals need to survive</p>	<p>Uses of Everyday materials – within their NICER, pupils look at how they can make something fly, and therefore need to secure their knowledge of the properties of different materials in order to plan to make something</p>

	<p>this because they have acquired knowledge of both animals and humans as different beings in Year 1.</p> <p>We teach this in the autumn term so that they can access their learning from the spring and summer of Year 1 more easily and then further embed it.</p>	<p>and consider how their habitats help them to survive.</p> <p>Plants – is taught in spring to allow pupils to witness plant growth and to build on their schemata from when they have seen plants in autumn shed their leaves (or not). Plants are taught alongside living things as they form part of the environment many living things reside in.</p> <p>Within NICER, pupils are learning about the countryside, and therefore will draw on their Scientific knowledge of animals and plants.</p>	<p>that will be light enough, water proof enough and strong enough to fly.</p> <p>They build on knowledge of materials from Year 1 in this unit, extending and applying their learning within scientific and design experimentation.</p>
Key stage 2			
Year 3	<p>Plants are once again taught but here in the Autumn, allowing pupils to understand that different seasons have a different effect on environments and plants at different times of year.</p> <p>Animals inc Humans is built upon from Year 2 and progresses on from understanding of human needs into understanding the make-up of the human body.</p>	<p>Forces and Magnets builds on pupil knowledge from their understanding of properties of materials in Year 2 where they would have explored the properties of certain materials, and then this will allow pupils to consider both materials that are magnetic, how magnets work and how objects have different forces placed upon these.</p>	<p>Rocks are taught in the summer term to relate to the NICER learning about catastrophes where children will study key aspects of earthquakes, volcanoes and the layers of the earth surface. Their study of rocks in science will allow them to develop deep knowledge of the make up the earth as a planet.</p> <p style="text-align: center;">Light</p>
Year 4	<p>Animals including humans – focus on humans</p> <p style="text-align: center;">Living things and their habitats</p>	<p style="text-align: center;">States of matter</p> <p>Children will build on their knowledge of properties of materials to look at the changes in solids, liquids and gases.</p>	<p>Sound and Electricity are new concepts introduced into KS2 as different types of energy (some children would have learnt about forces, magnets and light in the previous cycle.)</p> <p>These two concepts are taught alongside their crazy contraptions NICER challenge when pupils will be studying inventions through time, including those that first worked with sound and electricity, and will design products that use these scientific concepts.</p>
Year 5	<p>Living things and their habitats and allows children to build on their knowledge of Living things and Animals including Humans taught in lower KS2.</p> <p>In context, children will be learning about endangered environments in South America in Geography and raising awareness of a global issue, therefore depth and understanding of adaptation and environments taught in Science will develop in cross curricular learning,</p>	<p style="text-align: center;">Earth and Space</p> <p style="text-align: center;">Forces</p>	<p>Properties and changes of materials – children will be learning by understanding that all matter that exists around us are made up from different particles in different combinations and structures. This basis for understanding of chemistry will then allow them to build on concepts previously learnt including forces and to further progress their knowledge when understanding aspects of forces and energy in physics.</p>
Year 6	<p style="text-align: center;">Light</p> <p>Electricity is taught in the Autumn term, allowing children to build on understanding from Year 3 / 4 on sources of light, sound and electricity from the different cycles, progressing their understanding and deepening knowledge of how to create more complex electrical circuits.</p>	<p>Animals including humans is taught to the end of upper KS2 because it is related to changes in body, puberty, reproduction as RSE and PSHE curriculum.</p>	<p>Evolution and Inheritance is taught alongside Living things and their habitats and allows children to build on their knowledge of Living things and Animals including Humans taught in lower KS2.</p>