

Peover Superior Endowed Primary School

Low KS2 Science Curriculum



These are the skills that children need to learn to make progress:

- observe and explore to generate ideas, define problems and pose questions in order to develop investigations and products
- engage safely in practical investigations and experiments and gather and record evidence by observation and measurement
- apply practical skills to design, make and improve products safely, taking account of users and purposes
- communicate and model in order to explain and develop ideas, share findings and conclusions
- to continually make systematic evaluations when designing and making, to bring about improvements in processes and outcomes.

	Which skills are the children learning?	What Core Knowledge will the children acquire? Y3	What Core Knowledge will the children acquire? Y4
LKS2	<p>Further Skills:</p> <ol style="list-style-type: none"> to investigate and explain how scientific and technological developments affect the physical and living worlds to explore and explain practical ways in which science can contribute to a more sustainable future to explore and explain how time measurement relates to day and night and the Earth's place in the solar system 	<p>Working scientifically</p> <ul style="list-style-type: none"> asking relevant questions and using different types of scientific enquiries to answer them setting up simple practical enquiries, comparative and fair tests making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers gathering, recording, classifying and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings. 	
	<ol style="list-style-type: none"> to apply scientific knowledge and understanding to grow healthy plants and explain how humans and other animals stay fit and healthy to investigate the physical characteristics of the local environment and the living things in it, comparing them with those from another locality to identify, group and select materials using properties and behaviours that can be tested, and identify and group living 	<p>Plants</p> <ul style="list-style-type: none"> identify and describe the functions of different parts of flowering plants: roots, stem, leaves and flowers 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 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, seed formation and seed dispersal. 	<p>All living things</p> <ul style="list-style-type: none"> identify and name a variety of living things (plants and animals) in the local and wider environment, using classification keys to assign them to groups recognise that environments can change and that this can sometimes pose dangers to living things.

<p>things using observable features and other characteristics</p> <p>Further Skills: 4. to apply knowledge and understanding to describe and explain the structure and function of key human body systems including reproduction 5. to investigate the structure, function, life cycle and growth of flowering plants and how these grow and are used around the world 6. to investigate, identify and explain the benefits of micro-organisms and the harm they can cause 7. to investigate and explain how plants and animals are interdependent and are diverse and adapted to their environment as a result of evolution</p>	Animals, including Humans	<ul style="list-style-type: none"> 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 identify that humans and some animals have skeletons and muscles for support, protection and movement. 	Animals, including Humans	<ul style="list-style-type: none"> describe the simple functions of the basic parts of the digestive system in humans identify the different types of teeth in humans and their simple functions construct and interpret a variety of food chains, identifying producers, predators and prey.
<p>3. to identify, group and select materials using properties and behaviours that can be tested, and identify and group living things using observable features and other characteristics 4. to investigate what happens when materials are mixed, and whether and how they can be separated again</p> <p>Further Skills: 8. to explore, explain and use reversible and nonreversible changes that occur in the world around them and how changes can be used to create new and useful materials</p>	Rocks	<ul style="list-style-type: none"> compare and group together different kinds of rocks on the basis of their appearance and simple physical properties 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. 	States of matter	<ul style="list-style-type: none"> 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.
<p>5. to investigate how light and sound travel and how shadows and sounds are made</p> <p>Further Skills: 9. to investigate the properties and behaviour of light and sound in order to describe and explain familiar effects</p>	Light	<ul style="list-style-type: none"> notice that light is reflected from surfaces find patterns that determine the size of shadows. 	Sound	<ul style="list-style-type: none"> identify how sounds are made, associating some of them with something vibrating 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.
<p>6. to investigate the effects of different forces and how they can use these to move mechanical parts or objects in specific ways</p> <p>Further Skills: 10. to investigate combinations of forces 11. to investigate and explain the effect of changes in electrical circuits</p>	Forces and magnets	<ul style="list-style-type: none"> notice that some forces need contact between two 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 two poles predict whether two magnets will attract or repel each other, depending on which poles are facing. 	Electricity	<ul style="list-style-type: none"> 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.

How will the children be enabled to do this? 'Breadth of Learning'

a. When investigating science and design and technology children should:

1. share their expertise in subjects that interest them and respond to relevant and current issues, locally and in the national media
2. apply their knowledge and understanding in real-life contexts, relating it to the world around them and visiting places to learn about science and design and technology
3. work with experts and enthusiasts to find out how science and design and technology are used and applied in day-to-day life.

b. Children should use investigations and designing and making activities to:

1. explore a range of familiar and less familiar contexts, environments and products
2. develop practical skills that will help them to carry out investigations and to make functional products from their design ideas.
3. use design and technology contexts to develop scientific understanding and apply their scientific knowledge to inform their designing and making
4. work collaboratively towards a common goal by sharing ideas, making compromises, negotiating and providing feedback.

c. When applying their knowledge and understanding of science and design and technology children should:

1. think creatively and inventively about how things work¹⁰, identify patterns and establish links between causes and effects
2. test their ideas through practical activities and review their own and others' ideas and investigations, designs and products
3. carry out their own investigations, deciding what kind of evidence to collect and what equipment and materials to use
4. suggest the results they expect and explain their observations and the significance and limitations of the conclusions they draw.

d. When developing their own design ideas children should:

1. explore ways of improving designs for products, mechanisms, structures, systems and control
2. investigate different materials, and use them to provide functional solutions to meet user needs, evaluating and refining their products as they work.