



BOLD = National Curriculum Objectives

Italics = Concepts

Year 3 expected			
Working scientifically	Chemistry	Biology	Physics
<p><u>Planning Investigations</u></p> <p><i>Pupils can ask questions</i> Ask relevant questions when prompted</p> <ul style="list-style-type: none"> with support, develop relevant, testable questions, e.g. what happens to shadows when the light source moves. <p><i>Pupils can plan an enquiry</i> Set up simple and practical enquiries, comparative and fair tests</p> <ul style="list-style-type: none"> plan enquiry, such as comparative or fair test, e.g. comparing the effect of different factors on plant growth <p><i>Pupils can identify and manage variables</i> Set up comparative tests</p> <ul style="list-style-type: none"> set up a comparative test, e.g. how far things move on different surfaces. 	<p><u>Rocks</u></p> <p><i>Different rocks have different properties and the formation of soil & fossils can be explained</i> Describe in simple terms how fossils are formed when things that have lived are trapped within rock</p> <ul style="list-style-type: none"> Explain how fossils are formed. <p>Recognise that soils are made from rocks and organic matter</p> <ul style="list-style-type: none"> Describe how soil is made. <p><i>Materials have physical properties which can be investigated and compared</i> Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</p> <ul style="list-style-type: none"> Examine and test rocks, grouping them according to the results 	<p><u>Plants</u></p> <p><i>Life exists in a variety of forms and goes through cycles</i> Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</p> <ul style="list-style-type: none"> Describe what each part of a flowering plant does. <p>Investigate the way in which water is transported within plants</p> <ul style="list-style-type: none"> Explain, with the aid of a diagram or plant, how water is carried up from the soil. <p>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</p> <ul style="list-style-type: none"> Explain how pollination, seed formation and seed dispersal play a role in the reproduction of flowering plants. <p><i>Habitats provide living things with what they need</i> 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><u>Forces and Magnets</u></p> <p><i>There are contact and non-contact forces; these affect the motion of objects</i> Compare how things move on different surfaces</p> <ul style="list-style-type: none"> Compare how an object, such as a toy car, will move on different surfaces. <p>Notice that some forces need contact between two objects, but magnetic forces can act at a distance</p> <ul style="list-style-type: none"> Recognise the difference between contact and contact forces. <p>Observe how magnets attract or repel each other and attract some materials and not others</p> <ul style="list-style-type: none"> Describe how magnets attract or repel each other, and attract magnetic materials. <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> <ul style="list-style-type: none"> Group materials on the basis of testing for being magnetic.



Subject Overview with challenge

		<ul style="list-style-type: none"> Explain what all plants need to flourish and recognise how these requirements vary in amount. 	<p>Describe magnets as having two poles</p> <ul style="list-style-type: none"> Describe and identify the poles of a magnet <p>Predict whether two magnets will attract or repel each other, depending on which poles are facing</p> <ul style="list-style-type: none"> Predict outcomes of a particular arrangement of magnets.
<p><u>Conducting experiments</u></p> <p><i>Pupils can use equipment to take measurements</i></p> <p>Make systematic observations, using simple equipment</p> <ul style="list-style-type: none"> use various equipment, as instructed, e.g. using a hand lens to examine rocks. <p><i>Pupils explore how to improve the quality of data</i></p> <p>Use standard units when taking measurements</p> <ul style="list-style-type: none"> use standard measurements when taking measurements, e.g. measuring distances between a light source and an object. 		<p><u>Animals, including humans</u></p> <p><i>Life exists in a variety of forms and goes through cycles</i></p> <p>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> <ul style="list-style-type: none"> Describe why animals depend on the correct nutrition. <p><i>The human body has a number of systems, each with its own function</i></p> <p>Identify that humans and some other animals have skeletons and muscles for support, protection and movement</p>	<p><u>Light</u></p> <p><i>Light & sound can be reflected & absorbed and enable us to see & hear</i></p> <p>Recognise that they need light in order to see things and that dark is the absence of light</p> <ul style="list-style-type: none"> Relate being able to see to the presence of light. <p>Notice that light is reflected from surfaces</p> <ul style="list-style-type: none"> Describe how some objects reflect light. <p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes</p>



<p><u>Recording evidence</u></p> <p><i>Pupils record work with diagrams and label them</i></p> <p>Record findings in various ways</p> <ul style="list-style-type: none"> with prompting, draw and label diagrams, e.g. to show how water travels in a plant. <p><i>Pupils can display data using labelled diagrams, keys, tables and bar charts</i></p> <p>With prompting, suggest how findings may be tabulated</p> <ul style="list-style-type: none"> with prompting, use tables to record evidence, e.g. recording what happens when various rocks are rubbed together. <p><i>Pupils can display data using line graphs</i></p> <p>With prompting, use various ways of recording, grouping and displaying evidence</p> <ul style="list-style-type: none"> with prompting, gather and display evidence in various ways, e.g. about the ways that magnets behave in relation to each other 		<ul style="list-style-type: none"> Explain which parts of the skeleton provide support and protection, and how they allow for movement. 	<ul style="list-style-type: none"> Describe how and why our eyes should be protected from sunlight. <p>Recognise that shadows are formed when the light from a light source is blocked by a solid object</p> <ul style="list-style-type: none"> Explain how shadows are made. <p>Find patterns in the way that the size of shadows change</p> <ul style="list-style-type: none"> Describe how to change the size of a shadow.
<p><u>Reporting findings</u></p> <p><i>Pupils process findings to develop conclusions and identify causal relationships</i></p> <p>With prompting, suggest conclusions from enquiries</p>			



<ul style="list-style-type: none">with prompting, write a conclusion based on evidence, e.g. exploring the strengths of different magnets. <p><i>Pupils use displays and presentations to report on findings</i></p> <p>Suggest how findings could be reported</p> <ul style="list-style-type: none">indicate findings from an enquiry that could be reported, e.g. answering questions about how rocks are formed.			
<p><u>Conclusions and predictions</u></p> <p>Pupils can analyse data</p> <p>Gather and record data about similarities, differences and changes</p> <ul style="list-style-type: none">with prompting, recognise patterns that relate to scientific ideas, e.g. investigating the behaviour of magnets. <p>Pupils can draw conclusions</p> <p>With prompting, suggest conclusions that can be drawn from data</p> <ul style="list-style-type: none">with support, use evidence to produce a simple conclusion, e.g. the changes that occur when rocks are in water. <p>Pupils can develop investigation further</p> <p>Suggest possible improvements or further questions to investigate</p> <ul style="list-style-type: none">suggest how an investigation could be extended, e.g. suggesting creative uses for different magnets.			



Year 3 challenging			
Working scientifically	Chemistry	Biology	Physics
<p><u>Planning Investigations</u></p> <p><i>Pupils can ask questions</i> Ask relevant questions when prompted</p> <ul style="list-style-type: none"> develop relevant, testable questions. <p><i>Pupils can plan an enquiry</i> Set up simple and practical enquiries, comparative and fair tests</p> <ul style="list-style-type: none"> plan investigations using different types of scientific enquiry. <p><i>Pupils can identify and manage variables</i> Set up comparative tests</p> <ul style="list-style-type: none"> set up comparative and fair tests. <p><u>Conducting experiments</u></p> <p><i>Pupils can use equipment to take measurements</i> Make systematic observations, using simple equipment</p> <ul style="list-style-type: none"> use various equipment, as instructed, repeatedly and with care <p><i>Pupils explore how to improve the quality of data</i> Use standard units when taking measurements</p> <ul style="list-style-type: none"> can recognise the importance of using standard units and measure accurately. 	<p><u>Rocks</u></p> <p><i>Different rocks have different properties and the formation of soil & fossils can be explained</i> Describe in simple terms how fossils are formed when things that have lived are trapped within rock</p> <ul style="list-style-type: none"> Explain the importance of studying fossils. <p>Recognise that soils are made from rocks and organic matter</p> <ul style="list-style-type: none"> Compare different soils in terms of composition. <p><i>Materials have physical properties which can be investigated and compared</i> Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</p> <ul style="list-style-type: none"> Suggest uses for different kinds of rocks based on their properties. 	<p><u>Plants</u></p> <p><i>Life exists in a variety of forms and goes through cycles</i> Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</p> <ul style="list-style-type: none"> Suggest why parts may vary in size and shape from one species of flowering plant to another. <p>Investigate the way in which water is transported within plants</p> <ul style="list-style-type: none"> Suggest how this process might vary from one type of plant to another. <p>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</p> <p>Suggest why pollination, seed formation and seed dispersal may vary from one type of plant to another.</p> <p><i>Habitats provide living things with what they need</i> 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> <ul style="list-style-type: none"> Compare the requirements of different plants and link these to particular habitats 	<p><u>Forces and Magnets</u></p> <p><i>There are contact and non-contact forces; these affect the motion of objects</i> Compare how things move on different surfaces</p> <ul style="list-style-type: none"> Predict how an object will move on other surfaces and suggest why <p>Notice that some forces need contact between two objects, but magnetic forces can act at a distance</p> <ul style="list-style-type: none"> Explore how magnetic attraction and repulsion are affected by distance. <p>Observe how magnets attract or repel each other and attract some materials and not others</p> <ul style="list-style-type: none"> Explore whether some magnets are stronger than others. <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> <ul style="list-style-type: none"> Identify some applications of magnets and magnetic materials.



<p>Recording evidence</p> <p>Pupils record work with diagrams and label Them</p> <p>Record findings in various ways</p> <ul style="list-style-type: none"> use words and diagrams to record findings. <p><i>Pupils can display data using labelled diagrams, keys, tables and bar charts</i></p> <p>With prompting, suggest how findings may be tabulated</p> <ul style="list-style-type: none"> can recognise the importance of using standard units and measure accurately. <p><i>Pupils can display data using line graphs</i></p> <p>With prompting, use various ways of recording, grouping and displaying evidence</p> <p>with prompting, gather and display evidence in various ways, e.g. about the ways that magnets behave in relation to each other</p> <ul style="list-style-type: none"> use various ways to record evidence. 		<p><u>Animals, including humans</u></p> <p><i>Life exists in a variety of forms and goes through cycles</i></p> <p>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> <ul style="list-style-type: none"> Explain why a varied diet is important <p><i>The human body has a number of systems, each with its own function</i></p> <p>Identify that humans and some other animals have skeletons and muscles for support, protection and movement</p> <ul style="list-style-type: none"> Compare the ways that the skeletons of different animals provide support, protection and movement. 	<p>Describe magnets as having two poles</p> <ul style="list-style-type: none"> Explore the similarities and differences between the two poles. <p>Predict whether two magnets will attract or repel each other, depending on which poles are facing</p> <ul style="list-style-type: none"> Apply ideas about the interaction of magnets to contexts such as toys.
<p><u>Reporting findings</u></p> <p><i>Pupils process findings to develop conclusions and identify causal relationships</i></p> <p>With prompting, suggest conclusions from enquiries</p> <ul style="list-style-type: none"> can write a conclusion based on evidence. 			<p><u>Light</u></p> <p><i>Light & sound can be reflected & absorbed and enable us to see & hear</i></p> <p>Recognise that they need light in order to see things and that dark is the absence of light</p> <ul style="list-style-type: none"> Recognise that vision involves light travelling to the eyes.



<p><i>Pupils use displays and presentations to report on findings</i></p> <p>Suggest how findings could be reported indicate findings from an enquiry that could be reported, e.g. answering questions about how rocks are formed.</p> <ul style="list-style-type: none">• present findings either in writing or orally.			<p>Notice that light is reflected from surfaces</p> <ul style="list-style-type: none">• Recognise that some surfaces are better at reflecting light than others.
<p><u>Conclusions and predictions</u></p> <p>Pupils can analyse data</p> <p>Gather and record data about similarities, differences and changes</p> <ul style="list-style-type: none">• recognise patterns that relate to scientific ideas. <p>Pupils can draw conclusions</p> <p>With prompting, suggest conclusions that can be drawn from data</p> <ul style="list-style-type: none">• use evidence to produce a simple conclusion. <p>Pupils can develop investigation further</p> <p>Suggest possible improvements or further questions to investigate</p> <ul style="list-style-type: none">• can use evidence to suggest further relevant investigations.			<p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes</p> <ul style="list-style-type: none">• Explain why sunlight can be dangerous and how types of protection works. <p>Recognise that shadows are formed when the light from a light source is blocked by a solid object</p> <ul style="list-style-type: none">• Suggest how light is travelling to form a shadow. <p>Find patterns in the way that the size</p> <ul style="list-style-type: none">• Relate position of an object and position of a screen to the size of the shadow