Working Scientifically: Statutory Requirements

During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

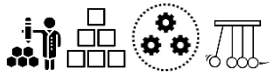
- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, 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.

Year 3 Autumn 1 (6 weeks)	Key concepts	Sequence of lessons	Sticky knowledge for this topic	Working scientifically	Snap Science Assessments
Big Question: How do things change over time? Snap Science Module: Rock Detectives NC Strand - Rocks (Biology)	Working Scientifically Change Similarity and difference Process 	1. **SS lesson 1 –** What different types of rock are there? (expire a variety of rocks. Describe and compare observable properties) And **SS lesson 2** – Which rock is which? 2. **SS lesson 3** – How are rocks used around our school? And **SS lesson 6** – How do rocks change over time? (walk around school/local area observing rocks used and changes e.g. due to weathering) 3. **SS lesson 4** – Are all rocks as hard as one another? And **SS lesson** 5 – Are all rocks waterproof? 4. SS lesson **7** – How is soil made? And **SS lesson 8** – Why do some soils hold water? 5. **SS lesson 9** – What is a fossil anyway? And **SS lesson 10** – How are fossils formed? 6. **SS lesson EL2** – Who was Mary Anning and how did she become a famous fossil-hunter?	1. I know that rocks are naturally occurring materials and they have different properties – differ in appearance, shape, size, weight, strength 2. I can classify rocks according to their properties (e.g. hardness, waterproofness) 3. I know common uses of rocks and can select appropriate rocks to be used for different purposes. 4. I know that soils are made up of pieces of ground down rock which may be mixed with plant and animal material (organic matter), and the type of rock, size of rock pieces and the amount of organic matter affect the property of the soil 5. I know that some rocks contain fossils. Fossils were formed millions of years ago. When plants and animals died, they fell to the seabed. They became covered and squashed by other material. Over time the dissolving animal and plant matter is replaced by minerals from the water 6. I know where fossils might be found and can describe how they can be collected safely	Pupils might work scientifically by: observing rocks, including those used in buildings and gravestones, and exploring how and why they might have changed over time; using a hand lens or microscope to help them to identify and classify rocks according to whether they have grains or crystals, and whether they have fossils in them. Research and discuss the different kinds of living things whose fossils are found in sedimentary rock, explore how fossils are formed. Explore different soils and identify similarities and differences between them and investigate what happens when rocks are rubbed together or what changes occur when they are in water.	1. Appearance and properties of rock 2. What is soil made from? 3. Fossil formation

Working Scientifically: Statutory Requirements

During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- 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.

Year 3 Autumn 2 (7.5 weeks)	Key concepts	Sequence of lessons	Sticky knowledge for this topic	Working scientifically	Snap Science Assessments
Big Question: What can we learn about the world around us? Snap Science Module: How Does Your Garden Grow? NC Strand - Plants (Biology)	Working Scientifically Structure Function Cause and effect 	1. Environment walk – what plants grow in ours school grounds? And **SS lesson 1** – What do we know about plants? 2. **SS lesson 2** – What do we know about leaves? 3. **SS lesson 3** – What would happen if a plant lost its leaves? (investigation) 4. **SS lesson 4** – Are all roots the same? 5. **SS lesson 5** – Where does the water go? 6. **SS lesson 6** – Why do plans need stems? 7. **SS lesson 11** – Can plants survive without leaves? (findings from investigation)	1. I know the different parts of flowering plants - roots, stem/trunk, leaves, flowers/blossom, petals, sepal 2. I can describe the functions of parts of a plant Roots – absorb water and nutrients from soils and anchor the plant in place Stem –transport water and holds flowers/leaves up in the air to help pollination and seed dispersal Leaves – use sunlight and water to produce the plant's food Flower – enable plant to reproduce Petals – attract bees 3. I can describe how a plant will be affected by the removal of a part e.g. removing the roots will mean it can't suck up water 4. I can name the male and female parts of a flower - male - stamen (anther and filament) and female - ovule, ovary, carpel (stigma and style) 5. I know that water is taken up through the roots and travels through the stem to the leaves and flowers	Pupils might work scientifically by: comparing the effect of different factors on plant growth, for example, the amount of light, the amount of fertiliser; They might observe how water is transported in plants, for example, by putting cut, white carnations into coloured water and observing how water travels up the stem to the flowers.	1. What if? Plant parts 2. True or false: water transportation in plants

Working Scientifically: Statutory Requirements

During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- 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.

Year 3 Spring 1 (5.5 weeks)	Key concepts	Sequence of lessons	Sticky knowledge for this topic	Working scientifically	Snap Science Assessments
Big Question: How has diversity improved life? Snap Science Module: How Does Your Garden Grow? NC Strand - Plants (Biology)	Working Scientifically Growth Change Process 	1. **SS lesson 7** – Where do new plants come from? 2. **SS lesson 8** – What do flowers have in common? 3. **SS lesson 9** – What do bees do? 4. **SS lesson 10** – How are seeds dispersed? 5. **SS lesson 12** – Am I the perfect plant?	1. I know different plants require different conditions for germination and growth 2. I know that plants follow a continuous life cycle - a seed will germinate, grow root and stem, become a seedling, then a mature plant which, when pollinated, will grow seeds for the cycle to start again 3. I know that pollen, which is produced by the male part of the flower, is transferred to the female part of other flowers (pollination) – seeds 4. I can describe the role bees play in pollination. Bees collect nectar from flowers and pollen sticks to their legs which transfers to another plant they visit 5. I can explain what seed dispersal is 6. I know that seeds can be dispersed by wind, water, dropping, carrying, eating, dropping	Pupils might work scientifically by: discovering how seeds are formed by observing the different stages of plant life cycles over a period of time; looking for patterns in the structure of fruits that relate to how the seeds are dispersed.	1. Flowering plant life cycles

Working Scientifically: Statutory Requirements

During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

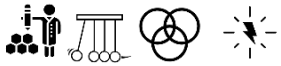
- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, 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.

Year 3 Spring 2 (6 weeks)	Key concepts	Sequence of lessons	Sticky knowledge for this topic	Working scientifically	Snap Science Assessments
Big Question: What makes a good place to live? Snap Science Module: Amazing Bodies NC Strand - Animals including Humans	Working Scientifically Function Cause and effect Structure 	1. **SS lesson 1** – What would you need to survive? 2. **SS lesson 2** – What do we need to eat to stay healthy? And SS lesson 3 – How does an adventurer stay healthy? 3. **SS lesson 4** – Why do we have a skeleton? 4. **SS lesson 5** – Can you design a new vertebrate species? 5. **SS lesson 6** – How do muscles help us move? 6. **SS lesson 7** – Do our bodies affect how well we can do things? (plan investigation) And **SS lesson 8** – How good are we at different activities? (carry out investigation to test hypotheses)	1. I know that humans need food from all food groups – carbohydrate, fat, diary, protein, fruit/vegetables 2. I know that animals and humans cannot make their own food 3. I know that animals including humans get nutrition from what they eat 4. I can describe the effect on the body if it doesn't get food from all food groups 5. I know that humans and some animals have skeletons for support, protection and movement 6. I know that vertebrates are animals with a backbone and invertebrates are animals without a backbone	Pupils might work scientifically by: identifying and grouping animals with and without skeletons and observing and comparing their movement; exploring ideas about what would happen if humans did not have skeletons. They might compare and contrast the diets of different animals (including their pets) and decide ways of grouping them according to what they eat. They might research different food groups and how they keep us healthy and design meals based on what they find out.	1. Food and nutrients 2. True or false: skeleton

Working Scientifically: Statutory Requirements

During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- 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.

Year 3 Summer 1 (6 weeks)	Key concepts	Sequence of lessons	Sticky knowledge for this topic	Working scientifically	Snap Science Assessments
Big Question: Where does the power come from? Snap Science Module: The Power of Forces NC Strand - Forces (Physics)	Working Scientifically Cause and effect Similarity and difference Energy 	1. **SS lesson 1** – How can you make it start to move? 2. **SS lesson 2** – What's making it move? 3. **SS lesson 3** – How well can an object slide on different materials? 4. **SS lesson 4** - Which materials are magnetic? 5. **SS lesson 5** – What can magnets do? And **SS lesson 6** – How strong are magnets? 6. **SS lesson 7** – How do magnets affect each other?	1. I know that a force is a push or a pull. Some forces need contact between the two objects but magnetic forces can act at a distance 2. I know that when an object moves on a surface, the texture of the surface and the object affect how it moves. It may help the object to move better or it may hinder its movement e.g. ice skater compared to walking on ice in normal shoes 3. I know that some materials are attracted to a magnet and are therefore magnetic e.g. metal 4. I know that some materials are not attracted to a magnet and are therefore not magnetic e.g. wood 5. I know that the strongest parts of a magnet are the poles. Magnets have two poles – a north pole and a south pole 6. I know that magnets will attract each other at opposite poles but the same poles will repel	Pupils might work scientifically by: comparing how different things move and grouping them; raising questions and carrying out tests to find out how far things move on different surfaces and gathering and recording data to find answers their questions; exploring the strengths of different magnets and finding a fair way to compare them; sorting materials into those that are magnetic and those that are not; looking for patterns in the way that magnets behave in relation to each other and what might affect this, for example, the strength of the magnet or which pole faces another; identifying how these properties make magnets useful in everyday items and suggesting creative uses for different magnet	1. Contact force or not? 2. Slow down or speed up? 3. What is magnetic? 4. Magnetic force 5. Magnetic poles 5. Poles attract and repel

Working Scientifically: Statutory Requirements

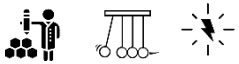
During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- 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.

Working Scientifically: Statutory Requirements

During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- 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.

Year 3 Summer 2 (7.5 weeks)	Key concepts	Sequence of lessons	Sticky knowledge for this topic	Working scientifically	Snap Science Assessments
Big Question: Is everything what it first appears to be? Snap Science Module: Can You See Me? NC Strand - Light (Physics)	Working Scientifically Cause and effect Energy 	1. **SS lesson 1** – What do we need to see? 2. **SS lesson 2** – Which is the shiniest? 3. **SS lesson 3** – How can we make things easier to see at night? 4. **SS lesson 4** – What do mirrors do? 5. **SS lesson 5** – How can I make a shadow? And **SS lesson 6** – Can you change the shape of a shadow? 6. **SS lesson 7** – How can you change the size of a shadow? 7. **SS lesson 8** – What makes the best sunglasses?	1. I know that we see objects because our eyes can sense light. Dark is the absence of light and we cannot see anything in complete darkness. 2. I know that the more light there is, the easier objects are to see 3. I know that some surfaces reflect light. Objects are easier to see when there is less light if they are reflective 4. I know that the sun is a source of light and it can be dangerous to look at directly 5. I know that shadows are formed on a surface when an opaque or translucent object is between a light source and the surface and blocks some of the light 6. I know that the size of the shadow depends on the position of the source, object and surface	Pupils might work scientifically by: looking for patterns in what happens to shadows when the light source moves or the distance between the light source and the object changes.	1. What do we need to see? 2. What reflects best? Quiz 3. Where is the shadow? 4. Shadow size 5. Sun protection