Year Three

During Year 3 children develop the skills of working scientifically through 3 units:

Year	Questioning & Enquiry	Observing and Measuring	Investigating	Recording & Reporting Findings	Identifying & classifying	Conclusions	Key Vocab
3	Begin to ask questions about the world around us, exploring everyday phenomena and the relationships between living things	Learn to measure using scientific equipment (thermometers, data loggers) Begin to decide what data to collect and measure to investigate simple patterns and relationships	Begin to recognise when a simple fair test is necessary and help to decide how to set it up Help to decide which variable to keep the same and which to change	Begin to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.	Help to decide criteria for grouping, sorting and classifying including grouping by behaviour or properties based on testing.	Begin to use results to draw simple conclusions, make predictions, suggest improvements and raise further questions.	Research Scientific enquiry Comparative Test Fair Test Observation Thermometer Gather/record data
Connections to Mathematics Units		**Measuring week 18** I can measure lengths (km/m/cm/mm) I can compare, add and subtract lengths (km/m/cm/mm) I can measure, compare, add and subtract mass (kg/g) I can measure, compare, add and subtract volume/capacity (l/ml)		**Statistics week 32** I can interpret and present data using bar charts, pictograms and tables I can solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts (for example for example,			

				2, 5, 10 units per cm) and pictograms and tables.			

Unit 1 (Autumn Term): Rocks

Rocks **Year Three**	**3 types of rocks** > compare and group together different kinds of rocks on the basis of their appearance and simple physical properties **Fossils** >describe in simple terms how fossils are formed when things that have lived are trapped within rock **Soils are made from rocks and organic matter** > recognise that soils are made from rocks and organic matter.	**I can use the vocabulary linked to rocks** **I can describe the properties of different types of rocks** **I can describe the work of Mary Anning as a palaeontologist** **I can describe how fossils are formed**	**Rock** **Soil** **Sand** **Clay** **Fossil** **Grain** **Crystal** **Sedimentary** **Metamorphic** **Igneous** **Similar** **Different**	**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. Pupils might research and discuss the different kinds of living things whose fossils are found in sedimentary rock and explore how fossils are formed. Pupils could 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. They can raise and answer questions about the way soils are formed. **Examples of activities:** >Children use a hand lens to observe a selection of rocks. They make observational drawings and describe them with the help of a word bank. Children try to identify the name of each rock and whether it contains grains, crystals or fossils. >Children carry out an investigation to place a selection of rocks in order of hardness. They predict and then test whether the rock can scratch each of the other rocks. They can use their results to make to create a simple table and bar chart, and finally place the rocks in order of hardness. >Children can investigate the properties of a range of rocks by predicting and observing whether different rocks can be scratched with a nail, are porous, or can float in water. They use their results to create and label a 1-set Venn diagram. >Children research and discuss some different types of fossils inside sedimentary rocks. They learn that fossils are rare and often incomplete. They look at images of fossils, label what they can see, and

				make a drawing of what organisms might have looked like when it was alive. >Using hand lens, children explore two different soil types. They identify the similarities and differences, looking for sand, plant parts, water and minibeasts. They create an observational drawing and write a description of each sample. >Children examine a soil sample. They mix it with water inside a bottle, then allow it to settle. They draw and label its initial appearance, and then its appearance after several days. They discuss how it changes overtime. **Links to websites for additional activities:** https://www.hamilton-trust.org.uk/science/year-3-science/rocks-rocks-and-fossils/ https://www.stem.org.uk/resources/community/collection/12367/year-3-rocks
Common misconceptions:				Some children may think: • rocks are all hard in nature • rock-like, man-made substances such as concrete or brick are rocks • materials which have been polished or shaped for use, such as a granite worktop, are not rocks as they are no longer 'natural' • certain found artefacts, like old bits of pottery or coins, are fossils • a fossil is an actual piece of the extinct animal or plant • soil and compost are the same thing.

Unit 2 (Spring Term): Forces and Magnets

Connections to other science units: This is the first unit children encounter. Learning undertaken in this unit will be built on in Year 6 (Forces)				
Forces and magnets **Year Three**	>compare how things move on different surfaces	**I can use the vocabulary linked to forces and magnets**	**Force** **Material** **Magnet**	Pupils should observe that magnetic forces can act without direct contact, unlike most forces, where direct contact is necessary (for example, opening a door, pushing a swing). They should explore the

	>notice that some forces need contact between two objects, but magnetic forces can act at a distance **Magnets attract/repel** >observe how magnets attract or repel each other and attract some materials and not others **Magnetic and non-magnetic materials** >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 **North and South Poles** >describe magnets as having two poles >predict whether two magnets will attract or repel each other, depending on which poles are facing.	**I know and use attract and repel to describe magnetic forces** **I know magnets have a two poles** **I can group everyday materials according to whether they have the property of magnetic attraction**	**Attract** **Repel** **Magnetic** **Non-magnetic** **Pole** **North** **South**	behaviour and everyday uses of different magnets (for example, bar, ring, button and horseshoe). **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 magnets. **Examples of activities:** >Children investigate which objects and materials will prevent a paperclip from being attracted to a magnet. They attempt to identify the main material in each object. They use their results to complete a Venn diagram containing a single set. They attempt to explain their findings. >Children investigate how magnets can make objects move on different surfaces. They attach a metal paperclip to a book and investigate how placing it on different surfaces affects how easily a magnet can move it. They record their predictions and measurements in a table, and transfer results to a bar chart. **Links to websites for additional activities:** https://www.stem.org.uk/resources/community/collection/12391/year-3-forces-and-magnets https://www.hamilton-trust.org.uk/science/year-3-science/forces-and-magnets-amazing-magnets/

Common misconceptions:				Some children may think: • The bigger the magnet the stronger it is. • All metals are magnetic.

Unit 3 (Summer Term):

Connections to other science units: This is the first unit children encounter. Learning undertaken in this unit will be built on in Year 6 (Animals including humans)				
Animals including human **Year Three**	**Nutrition/ Food Groups** >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 **Exercise and the skeletal system (Endo/exo skeletons) and Muscles** >Identify that humans and some other animals have skeletons and muscles for support, protection and movement	**I know and can use key vocabulary linked to the body including teeth, nutrition and structure** **I know about the functions of different food groups and how they support the body** **I know the differences between endo and exo skeletons** **I can identify and name different teeth, describe their functions and recognise how to keep teeth healthy**	**Nutrition** **Carbohydrate** **Protein** **Fat** **Vitamin** **Diet** **Skeleton** **Endoskeleton** **Exoskeleton** **Muscle** **Bone** **Joint** **Teeth/Tooth** **Molar** **Incisor** **Canine** **Gum** **Calcium** **Decay**	Pupils should continue to learn about the importance of nutrition and should be introduced to the main body parts associated with the skeleton and muscles, finding out how different parts of the body have special functions. 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. **Pupils might work scientifically by:** Comparing the teeth of carnivores and herbivores, and suggesting reasons for differences; finding out what damages teeth and how to look after them. **Examples of activities:**

	Effect of exercise on the body >describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. **Teeth** >identify the different types of teeth in humans and their simple functions	**I can describe the effects of exercise on the body and how to keep bodies healthy.**	**Plaque** **Saliva**	> Children learn that humans have 2 sets of teeth, and that teeth can be classified into different groups. They learn about the number, location and function of the incisors, canines and molars. They create a colour-coded diagram explaining the role of each type of tooth. > Children learn about the stages of tooth decay and how it can be caused. They learn how tooth decay can be prevented and treated. Children use a writing frame to complete an interview text, imagining themselves in the role of a dentist and explaining how we can look after our teeth. >Children investigate the affect of different liquids on the teeth by using an egg to represent to enamel of the teeth. > Children learn about the 5 food groups - bread, cereals and potatoes (carbohydrates), meat and fish, fruit and vegetables, milk and dairy, and fats and sugars. They identify some food which belong to each of these groups. They create a pictogram showing how many portions of each food group they should eat in per day. They can cut and paste the pictogram symbols provided, or draw their own. > Children learn that muscles always pull and never push, and because of this they often work in pairs to allow movement in both directions. Using a template and some split pins, children create their own model of the human arm, with biceps and triceps pulling the lower arm up and down accordingly. **Links to websites:** https://www.hamilton-trust.org.uk/science/year-3-science/animals-including-humans-keeping-healthy/?gclid=EAIaIQobChMI-KOGouyZ6QIVUuztCh0-ZA2SEAAYASAAEgKVZfD_BwE https://www.stem.org.uk/resources/community/collection/12601/year-3-animals-including-humans https://www.stem.org.uk/resources/community/collection/12365/year-4-animals-including-humans
Common misconceptions:				Some children may think: • Certain whole food groups like fats are ‘bad’ for you. • Certain specific foods, like cheese are also ‘bad’ for you. • Diet and fruit drinks are ‘good’ for you.

	• Snakes are similar to worms, so they must also be invertebrates. Invertebrates have no form of skeleton.