Science Overview - Year 3

Year Group	3	Term	Autumn 1	Topic title	Light

Specific Learning Objectives	Links to prior learning
• Recognise that they need light in order to see things and that dark is the absence of light • Notice that light is reflected from surfaces • Recognise that light from the sun can be dangerous and that there are ways to protect their eyes • Recognise that shadows are formed when the light from a light source is blocked by an opaque object • Find patterns in the way that the size of shadows change	The children have been exposed to the concepts of light and dark in reception where they talked about day and night. In Year 1 the children observe and describe weather associated with the seasons and how day length varies.
Notes and Guidance (non-statutory)	**Links to future learning**
Pupils should explore what happens when light reflects off a mirror or other reflective surfaces, including playing mirror games to help them to answer questions about how light behaves. They should think about why it is important to protect their eyes from bright lights. They should look for, and measure, shadows, and find out how they are formed and what might cause the shadows to change. **Note:** Pupils should be warned that it is not safe to look directly at the Sun, even when wearing dark glasses. 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.	Children will revisit light in year 6 where they will look in more detail about light travelling in straight lines and how light travels from a source into our eye or from a source to an object which reflects the light into our eye. They will also look at how the shape of a shadow is determined by the object.
Working Scientifically Objectives	**Links to Reading texts**
• 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 • Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	• How Rainbows are Formed • The Dark • Smoot: A Rebellious Shadow • My Shadow

• Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	

Science Overview - Year 3

Year Group	3	Term	Autumn 2	Topic title	Animals, including humans

Specific Learning Objectives	Links to prior learning
• 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 other animals have skeletons of muscles for support, protection and movement	In year 2, the children learnt: that animals, including humans, have offspring which grow into adults, about the basic needs of animals, including humans, for survival (water, food and air), about the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.
Notes and Guidance (non-statutory)	**Links to future learning**
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.	Year 4 - 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. **NB. Only 2 lessons are required as the topic is covered in Y3 PRHE lessons during the summer term**
Working Scientifically Objectives	**Links to Reading texts**
• Asking relevant questions and using different types of scientific enquiries to answer them • Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	• Broken Bones • Food For Healthy Bones • All About Healthy Eating

Science Overview - Year 3

Year Group	3	Term	Autumn 2	Topic title	Rocks

Specific Learning Objectives	Links to prior learning
• 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	In Y1 & 2, children studied the properties and characteristics of materials and how they may be changed.
Notes and Guidance (non-statutory)	**Links to future learning**
Linked with work in geography, pupils should explore different kinds of rocks and soils, including those in the local environment. 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.	In Y6, children will learn about how Earth has changed and how fossils can give us clues about the past.
Working Scientifically Objectives	**Links to Reading texts**
• Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	

Science Overview - Year 3

Year Group	3	Term	Spring 1 & 2	Topic title	Forces and magnets

Specific Learning Objectives	Links to prior learning
• Compare how things move on different surface • 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	This is the first topic where forces are introduced. There is no prior learning.
Notes and Guidance (non-statutory)	**Links to future learning**
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 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.	Year 5 - Know that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Identify the effects of air resistance and water resistance. Identify and know the effect of friction between moving surfaces. Explain how levers, pulleys and gears allow a smaller force to have a greater effect.
Working Scientifically Objectives	**Links to Reading texts**
• Setting up simple practical enquiries, comparative and fair tests	• Sir Isaac Newton and the Apple Story

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• Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • Using straightforward scientific evidence to answer questions or to support their findings	• Egg Drop • Magnes the Shepherd and the Discovery of Magnets

Science Overview - Year 3

Year Group	3	Term	Summer 1	Topic title	Plants

Specific Learning Objectives	Links to prior learning
• Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, 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 (NB. Cress seeds could be used on cotton wool and in soil, both in and out of a zip-lock bag to show variations) • 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	Year 1 - Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. Identify and describe the basic structure of a variety of common flowering plants, including trees. Year 2 - Observe and describe how seeds and bulbs grow into mature plants. Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.
Notes and Guidance (non-statutory)	**Links to future learning**
Pupils should be introduced to the relationship between structure and function: the idea that every part has a job to do. They should explore questions that focus on the role of the roots and stem in nutrition and support, leaves for nutrition and flowers for reproduction. **Note:** Pupils can be introduced to the idea that plants can make their own food, but at this stage they do not need to understand how this happens. Pupils might work scientifically by: comparing the effect of different factors on plant growth, for example, the amount of light, the amount of fertiliser; 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. 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.	Year 5 - Know the process of reproduction in plants. Know the life cycle of different living things including plants and mammals, amphibians, insects and birds. Know the differences between different life cycles. Year 6 - Classify living things into broad groups according to observable characteristics and based on similarities and differences. Know how living things have been classified. Give reasons for classifying plants and animals in a scientific way. Know how animals and plants are adapted to suit their environment
Working Scientifically Objectives	**Links to Reading texts**
• Asking relevant questions and using different types of scientific enquiries to answer them	• Du Iz Tak? • A Seed is Sleepy • Why are tomatoes a fruit?

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• Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • Identifying differences, similarities or changes related to simple scientific ideas and processes • Using straightforward scientific evidence to answer questions or to support their findings.	