YEAR 3 SCIENCE

Working Scientifically

Pupils will 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
- making systematic and careful observations and where appropriate, taking accurate measurements using standard units, using a range of equipment e.g thermometers and data loggers
- gathering , recording, classifying and presenting data in a variety of ways to help answer 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
- identity differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer question or to support their findings

PLANTS

Working Scientifically Assessment Task - Measuring Plants

Key Vocabulary

roots, stem, leaves, flowers, nutrients, fertilisation, petal, stamen, carpel, germination, photosynthesis, pollen, pollination, pollinator, seed formation, seed dispersal

Working Scientifically Skills	Knowledge
Planning ➢ set up simple practical enquiries, comparative and	**National Curriculum Requirements** ➢ identify and describe the function of different parts of flowering plants: roots, stem, leaves and flowers

fair tests **Obtaining and presenting evidence** ➢ make systematic and careful observations ➢ take accurate measurements using standard units using a range of equipment ➢ gather and record data in a variety of ways ➢ report on findings **Considering and evaluating evidence** ➢ identify differences, similarities or changes related to simple scientific ideas and processes ➢ with help, use results to draw conclusions ➢ use straightforward scientific evidence to answer questions or support their findings ➢ with support, raise further questions	➢ 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 role of flowers in the life cycle of flowering plants, including pollination, seed formation and seed dispersal **Lesson Breakdown:** **Parts of a Plant** ➢ identify the main parts of the plant: root, stem, leaves and flower ➢ understand the role of the different plant parts and how they are suited to their functions ➢ be introduced to structures that are only found in some plants e.g bulbs and runners **What do Plants Need to Grow Well?** ➢ explore the requirements of plants for life and growth **Moving Water** ➢ investigate the way water is transported within plants by observing the transport of food colouring through a stem **Reproduction in Flowering Plants** ➢ identify, name and understand the functions of the main parts of a flowering plant involved in the reproductive process ➢ understand the meaning of pollination ➢ understand the role of insects, birds and the wind in the process of pollination

	Fertilisation and Dispersal ➢ understand that fertilisation takes place when pollen and ovules fuse together to form seeds ➢ Understand that, in some plants, fertilisation causes the ovary to swell to produce fruit ➢ Know that seed dispersal is important as it increases a species chances of survival ➢ Identify a range of methods by which seeds can be dispersed
ANIMALS (including humans) **Working Scientifically Assessment Task - Model Skeletons and / or Researching Skeletons**	
Key Vocabulary healthy, nutrition, nutrients, energy, carbohydrates, sugars, protein, vitamins, minerals, fibre, fats (saturated and unsaturated), water, vertebrate, invertebrate, skeleton, bones, muscles, tendons, joints, support, protect, move, skull, ribs, spine	
Working Scientifically Skills	**Knowledge**
Planning ➢ ask relevant questions and use different types of scientific enquiries to answer them **Obtaining and presenting evidence**	**National Curriculum Requirements** ➢ 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 **Lesson Breakdown:**

➢ gather and record data in a variety of ways ➢ report on findings **Considering and evaluating evidence** ➢ with support, raise further questions	**Diet and Exercise** ➢ understand the components of a healthy, balanced diet, including carbohydrates, proteins, fats, vitamins and minerals, fibre and water ➢ be able to provide examples of foods that are good sources of each of the different food groups ➢ understand some of the problems associated with an unbalanced diet, including over- and under-eating ➢ appreciate the importance of exercise in maintaining healthy body function **The Human Skeleton** ➢ identify and name the major bones of the human skeleton ➢ understand that the purpose and function of the skeleton is to protect internal organs, support the body and allow movement ➢ know how and why the skeletons of different animals vary ➢ be introduced to the terms vertebrate, invertebrate, exoskeleton and endoskeleton ➢ understand how the human skeleton has changed (evolved) over time, and the advantages and disadvantages of being on two feet rather than four **Joints and Muscles**

	➢ be able to identify the role of muscles in moving the body ➢ understand that muscles work in pairs, contracting and relaxing, to move the bones ➢ know that muscles are attached to bones with tendons ➢ know that some muscles move involuntarily, such as the heart or diaphragm ➢ be able to locate different types of joint on a human skeleton
ROCKS **Working Scientifically Assessment Task - Testing Soil**	
Key Vocabulary rock, igneous, sedimentary, metamorphic, magma, lava, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil, permeable, impermeable, fossilisation, paleontology, erosion	
Working Scientifically Skills	**Knowledge**
Planning ➢ set up simple practical enquiries, comparative and fair tests **Obtaining and presenting evidence** ➢ make accurate measurements using	**National Curriculum Requirements** ➢ 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 have lived are trapped within rock ➢ recognise that soils are made from rocks and organic matter **Lesson Breakdown:**

standard units using a range of equipment ➢ record and present findings using drawings, labelled diagrams, keys, tally charts, Carroll diagrams, Venn diagrams, bar charts and tables **Considering and evaluating evidence** ➢ with help, use results to draw simple conclusions ➢ with support, use results to suggest improvements on what has been done	**Types of Rocks** ➢ compare different kinds of rocks based on their appearance **Grouping Rocks** ➢ group different kinds of rocks on the basis of their physical properties ➢ understand that rocks can be classified into three types (igneous, sedimentary and metamorphic) depending on how they are formed ➢ know that rocks do not consist of a single substance but contain many different types of minerals and are created over millions of years **Fossils** ➢ understand how fossils are formed in sedimentary rocks **Soils** ➢ soils are formed when rocks are broken down by weathering ➢ soil is a combination of rocks, minerals, organic matter (plant and animal materials), air and water ➢ soils have different properties depending on the rocks from which they are formed, the climate and organic matter contained in them ➢ soil consists of different layers formed over bedrock
LIGHT **Working Scientifically Assessment Task - Materials and Shadows**	
Key Vocabulary light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, reflection, reflective, mirror, sunlight, ray, dangerous, pupil, retina, opaque, translucent, transparent	

Working Scientifically Skills	Knowledge
Planning ➢ set up simple practical enquiries, comparative and fair tests **Obtaining and presenting evidence** ➢ make systematic and careful observations ➢ gather and record data in a variety of ways ➢ record and present findings using drawings, labelled diagrams, keys, tally charts, Carroll diagrams, Venn diagrams, bar charts and tables ➢ report on findings **Considering and evaluating evidence** ➢ with help, uses results to draw simple conclusions ➢ use straightforward scientific evidence to	**National Curriculum Requirements** ➢ recognise that they need light to see things and that dark is the absence of light ➢ notice that light is reflected from surfaces and 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 a solid object ➢ find patterns in the way that the size of shadows change **Lesson Breakdown:** **Light and Dark** ➢ recognise that we need light in order to see things and that dark is the absence of light by taking part in a 'feely bag' investigation **Reflective Surfaces** ➢ notice that light is reflected from surfaces by choosing the most reflective material for a new book bag **Marvellous Mirrors** ➢ notice that light is reflected from surfaces by playing mirror games **Sun Safety** ➢ recognise that light from the sun can be dangerous and that there are ways to protect our eyes by designing and advertising a pair of sunglasses or a sun hat

answer questions or to support their findings	**Making Shadows** ➢ recognise that shadows are formed when the light from a light source is blocked by a solid object by investigating the best material for curtains for a baby's bedroom **Changing Shadows** ➢ find patterns in the way that the size of shadows change by investigating what happens when you change the distance between the object and the light source
FORCES AND MAGNETS **Working Scientifically Assessment Task – Magnet Investigation and / or Shoe Grip**	
Key Vocabulary force, friction, surface, push, pull, twist, contact force, non-contact force, magnet, magnetic, magnetic field, strength, bar magnet, ring magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, north pole, south pole	
Working Scientifically Skills	**Knowledge**
Planning ➢ set up simple practical enquiries, comparative and fair tests **Obtaining and presenting evidence** ➢ take accurate measurements using standard units using a range of equipment	**National Curriculum Requirements** ➢ 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 and predict whether two magnets will attract or repel each other, depending on which poles are facing

➢ gather and record data in a variety of ways ➢ record and present findings using drawings, labelled diagrams, keys, tally charts, Carroll diagrams, Venn diagrams, bar charts and tables ➢ report on findings **Considering and evaluating evidence** ➢ with help, uses results to draw simple conclusions ➢ use straightforward scientific evidence to answer questions or to support their findings ➢ with support, use results to suggest improvements to what they have done	**Lesson Breakdown:** **Pushes and Pulls** ➢ notice that some forces need contact between two objects by identifying the different types of forces acting on objects **Faster and Slower** ➢ compare how things move on different surfaces by investigating the speed of a toy car over different surfaces **Magnetic Strength** ➢ observe how magnets attract or repel each other and attract some materials and not others by investigating the strength of different magnets ➢ notice that magnetic forces can act at a distance and attract some materials and not others by sorting materials ➢ compare and group materials according to whether they are magnetic by sorting materials **Magnetic Poles** ➢ describe magnets as having two poles and to predict whether two magnets will attract or repel each other, depending on which poles are facing