Science - Year 3 - Medium Term Plan
Autumn 1: Movement and nutrition

Lesson	Learning Objective	Success Criteria	National Curriculum Links	Vocabulary	Resources
One: Skeletons	• To explain the role of a skeleton. • Working scientifically: To group animals based on their physical properties	• I can name the three key functions of the skeleton. • I can recall key features of a vertebrate, invertebrate, endoskeleton and exoskeleton. • I can group animals based on their skeletons. • I can describe the role of joints in the skeleton.	Identify that humans and some other animals have skeletons and muscles for support, protection and movement. Pupils should be taught to use the following practical scientific methods, processes and skills: • Classifying in a variety of ways to help in answering questions.	- bone - endoskeleton - exoskeleton - invertebrate - joint - movement - protection - skeleton - spine - support - vertebrate	- Scissors (one each). - Hole punches (alternatively use sharp pencils and sticky tack s to be shared around the classroom). - Split pins (eight each). - Link: The Skeleton on VideoLink
Two: The bones in our body	• To recognise the main bones in the body. • Working scientifically: To measure and sort data.	• I can name key bones in the human skeleton. • I can identify the location of key bones in the human skeleton. • I can measure the length of different bones. • I can sort the data into size order.	• Identify that humans and some other animals have skeletons and muscles for support, protection and movement. • Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units. • Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. • Recording findings using simple scientific language and tables. -	- conclude - joint - measure - pelvis - ribs - skull - spine	• Sticky notes (one each). • Pre-written sticky notes with the names of the key bones (skull, spine, ribs and pelvis). • Backing paper (optional s see Attention grabber). • Dice (one per group). • 30 cm length of string (see Main event). • Link: Siemens - The Human Body Game
Three: Muscles and movement	• To explain how muscles are used for movement. • Science in action: To explore scientific advances.	• I can recall that there are different muscles in the body. • I can describe how a muscle causes movement. • I can explain how scientific research has helped with prosthetics.	• Identify that humans and some other animals have skeletons and muscles for support, protection and movement.	• contract • involuntary • muscle • relax • tendon • voluntary	- Card (half an A4 sheet each). - Straws (two and a half each). - Sticky tape. - String (1 m each). - Scissors (one each). - Link: The Guardian - Beyond bionics

					-
Four: Eating for survival	• To explain how food is an essential energy source for animals. • Working scientifically: To gather and compare data to answer questions. •	• I can recall that animals, including humans, need to eat food to survive. • I can describe ways the body uses energy. • I can identify how energy needs are different between people. • I can compare the nutritional information on food packaging.	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. Pupils should be taught to use the following practical scientific methods, processes and skills: • Using straightforward scientific evidence to answer questions or to support their findings.	- diet - energy - food chain - nutrient	• Clean food packaging (see Teacher guidance). • Calculators (see Adaptive teaching).
Five: Nutrient groups	• To identify the main nutrient groups and their simple functions. • Working scientifically: To record information using secondary sources.	• I can recall some of the seven nutrient groups. • I can give examples of food that contain a particular nutrient group. • I can explain why a particular nutrient group is essential for the body.	- 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. - Recording findings using simple scientific language, drawings and labelled diagrams.	- balanced diet - carbohydrate - carnivore - diet - energy - fat - fibre - food chain - herbivore - mineral - nutrient - omnivore - protein - vitamin - water	- Food packaging from Lesson 4.
Six: Balanced diets	• To explain what makes a balanced diet. • Science in action: To explore how knowledge has progressed over time and different jobs use this information.	• I can give examples of foods that make up a balanced diet. • I can compare different meals, explaining which is more balanced. • I can describe some changes to scientific knowledge about nutrition. • I can identify some jobs that require knowledge of nutrition.	- 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.	- balanced diet - carbohydrate - fat - fibre - mineral - nutrient - nutritionist - protein - vitamin - water -	- Paper plates or large circles drawn on A4 paper (one each). - Unit quiz and Activity: Movement and nutrition knowledge and skills catcher (see Assessment s: Science Y3: Movement and nutrition). - Link: Which one is cake? on VideoLink (from 7:00, with the sound off).x - Link: BBC Bitesize - A healthy plate.x

					- Link: BBC Bitesize - Food energy.ox -
Assessment: Assess topic using end of unit quiz and assessment sheet.					

Lesson	Learning Objective	Success Criteria	National Curriculum Links	Vocabulary	Resources
One: Pushes, pulls and twists.	• To describe the effects of contact forces. • Working scientifically: To label a diagram using arrows and scientific vocabulary.	• I can define the terms 'force' and 'contact force'. • I can classify a force as a push, pull or a twist. • Working scientifically: I can use arrows and scientific vocabulary to show the direction of a contact force.	• Compare how things move on different surfaces. • Notice that some forces need contact between two objects, but magnetic forces can act at a distance. • WS: Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.	• **contact force** • **force**	• A small ball of adhesive putty for teacher demonstration (see Recap and recall). • Table tennis or small, plastic balls (one between two). • Materials to explore contact forces (one between two s see Main event): • a whiteboard and pen; • a paper cup; • a 20 cm piece of string; • sticky tape. • Access to water.
Two: Friction	• To recognise the effects and uses of forces. • Working scientifically: To write a scientific conclusion identifying cause and effect.	• I can list the effects of forces. • I can define the term 'friction'. • I can list some uses of friction. • I can describe how surface roughness affects friction. • Working scientifically: I can use evidence to support my conclusion.	- Compare how things move on different surfaces. - Notice that some forces need contact between two objects, but magnetic forces can act at a distance. • WS: 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. -	- **conclusion** - **friction**	A ball (teacher demonstration s see Main event). The children's copies of the Activity: Contact force diagrams from Lesson 1: Pushes, pulls and twists. Envelopes (one each). A space with a shiny floor, such as the school hall. A 10 m tape measure. Materials for a friction investigation (one per group of three s see Main event): a sticky note; a plain plastic bottle cap; a bottle cap with sandpaper attached.
Three: Investigating friction	• To interpret how and why things move differently on different surfaces. • Working scientifically: To plan an investigation using variables.	• I can describe and compare how things move on rough and smooth surfaces. • I can explain why things move differently on rough and smooth surfaces. • Working scientifically: I can identify the variables to	- Compare how things move on different surfaces. - WS: Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.	variable	- Yellow sticky notes (one between three). - Blue sticky notes (one between three). - Materials for a friction investigation (one set between three): - a toy car;

		change, measure and control.			- a ramp; - a prop for the ramp; - a metre ruler; - materials to put on the ramp (e.g. foil, cardboard, bubble wrap, sandpaper, tea towel). - A whiteboard and pen (one per group). - Link: Friction on different surfaces on Videolink
Four: Magnets	• To describe the effects of magnets. • Working scientifically: To write a method.	• I can define the terms 'magnetism', 'magnetic material' and 'non-magnetic material'. • I can describe the poles of a magnet and how they attract and repel. • I can name some magnetic metals. • Working scientifically: I can write a method to explain how to use a magnet to classify materials as magnetic or non-magnetic.	• 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. • WS: 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.	- attract - magnet - magnetic - material - magnetism - non-contact force - non-magnetic material - north pole - repel - south pole	Whiteboards and pens (one between two). A device to take photographs (one between two). Sandwich bags of magnetic and non-magnetic materials (one between two s see Teacher knowledge).
Five: Investigating magnet strength	• Whiteboards and pens (one between two). • A device to take photographs (one between two). • Sandwich bags of magnetic and non-magnetic materials (one between two s see Teacher knowledge).	- Whiteboards and pens (one between two). - A device to take photographs (one between two). - Sandwich bags of magnetic and non-magnetic materials (one between two s see Teacher knowledge).	- Whiteboards and pens (one between two). - A device to take photographs (one between two). - Sandwich bags of magnetic and non-magnetic materials (one between two s see Teacher knowledge). - WS: Whiteboards and pens (one between two). - A device to take photographs (one between two). - Sandwich bags of magnetic and non-magnetic materials (one between two s see Teacher knowledge).	bar chart	- Whiteboards and pens (one between two). - A device to take photographs (one between two). - Sandwich bags of magnetic and non-magnetic materials (one between two s see Teacher knowledge). -

Six: Uses of magnets	• Whiteboards and pens (one between two). • A device to take photographs (one between two). • Sandwich bags of magnetic and non-magnetic materials (one between two s see Teacher knowledge).	- Whiteboards and pens (one between two). - A device to take photographs (one between two). - Sandwich bags of magnetic and non-magnetic materials (one between two s see Teacher knowledge). -	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. WS: Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.	electromagnet	- Whiteboards and pens (one between two). - A device to take photographs (one between two). - Sandwich bags of magnetic and non-magnetic materials (one between two s see Teacher knowledge). -
Assessment: Assessment quiz and knowledge sheet.					

Science - Year 3 - Medium Term Plan
Spring 1: Rocks and soil

Lesson	Learning Objective	Success Criteria	National Curriculum Links	Vocabulary	Resources
One Rocks: Appearance	To group rocks using their appearance.	- I can define the term 'rock'.	- Compare and group together different kinds of rocks on the	crystal grain igneous rock	- Equipment for observing rocks activity (per group of three s see Main activity):

	Working scientifically To observe the appearance of rocks closely, using a magnifying glass.	- I can describe the appearance of different rocks. - I can identify crystals and grains. Working scientifically - I can use a magnifying glass correctly. - I can observe the appearance of a rock in detail.	basis of their appearance and simple physical properties. - WS: Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.	lava magma metamorphic rock mineral molten rock organic matter rock sediment sedimentary	- rock samples (see Teacher knowledge); - 1 magnifying glass; - 1 whiteboard and pen. - Device for internet research (optional s. see Adaptive teaching). -
Two Rocks: Physical properties	To group rocks using their physical properties. Working scientifically: To make predictions, suggest improvements and explain observations over time.	I can group rocks by their absorbency. I can group rocks by their reaction to acid rain (vinegar). I can group rocks by their hardness. Working scientifically I can use my results to choose the appropriate rock type for a specific use. I can use my results to suggest a better choice of rock for a specific use. I can use my results to predict how a rock will be affected by the weather.	- Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. - WS: Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.	- **absorbency** - **acid rain** - **hard** - **hardness** - **impermeable** - **permeable** - **soft**	• Whiteboard and pen (one between three). • Equipment for the teacher demonstration (see Attention grabber): o pumice; o chalk (see Teacher knowledge); o 1 paper towel; o 1 hammer; o 1 transparent bowl of water. • Equipment for testing the properties of rocks (per group of three s. see Main event): o rock samples (see Teacher knowledge); o 1 nail; o 2 droppers (one for water and one for vinegar); o 1 plastic cup of white vinegar; o 1 plastic cup of water; o 1 magnifying glass.
Three Fossil formation	• To describe the process of	• I can list the different factors that break down rocks.	- Compare and group together different kinds of rocks on the basis of their appearance and	• **bone** • **fossil** • **imprint**	• Whiteboard and pen (one between two). • Equipment for the short film on fossil formation activity

	fossil formation. **Working scientifically** • To present research on fossil formation.	• I can use a model to demonstrate fossil formation. • I can use a short film to sequence the steps of fossil formation. **Working scientifically** • I can research fossil formation using a single source. • I can present research in short film form. -	simple physical properties. - Describe in simple terms how fossils are formed when things that have lived are trapped within rock. - WS: Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.		(per group of three ≤ see Main event): ○ a device for filming (see Teacher knowledge); ○ modelling equipment (see Teacher knowledge). • Tablet with the *Pupil video: Fossil formation* ready to play (optional ≤ see Adaptive teaching).
Four Fossils and palaeontology	• To identify fossils and group rocks accordingly. **Working scientifically** • To use the fossil record to answer questions about the past.	• I can identify fossils in rocks. • I can group rocks that contain fossils. • Science in action: I can describe the work of a palaeontologist. **Working scientifically** • I can use a model to determine the relative age of a fossil. • I can use the fossil record to suggest how a living thing has changed over time. • I can use the fossil record to suggest what living things	Describe in simple terms how fossils are formed when things that have lived are trapped within rock. WS: Using straightforward scientific evidence to answer questions or to support their findings.	• **era** • **fossil record** • **paelantologist**	• Equipment for spotting fossils (one between two ≤ see Attention grabber): ○ a mix of rock samples with and without fossils (optional ≤ see Teacher knowledge); ○ whiteboard and pen; ○ magnifying glass. • Equipment for fossil hunt activity (per group of three ≤ see Main event): ○ books for cliffs; ○ scissors; ○ device for taking photographs (optional ≤ see Adaptive teaching).

		were around in a certain era.			
Five Soil formation	• To compare soils and how they were formed. **Working scientifically** • To record the drainage rate for different soils in a bar chart.	• I can name some different types of soil. • I can describe some different types of soil. • I can compare and group soils according to their appearance. **Working scientifically** • I can draw the bars on a bar chart. • I can label the bars on a bar chart.	Recognise that soils are made from rocks and organic matter. WS: Pupils should be taught to use the following practical scientific methods, processes and skills: • Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.	• **clay** • **clay soil** • **loam soil** • **organic matter** • **peaty soil** • **rate** • **sand** • **sandy soil** • **silt** • **soil**	• Equipment for observing rocks activity (per group of three s. see Main activity): • rock samples (see Teacher knowledge); • 1 magnifying glass; • 1 whiteboard and pen. • Device for internet research (optional s. see Adaptive teaching). •
Six Soil layers and earthworms	• To describe a soil sample using sedimentation. **Working scientifically** • To draw and label a diagram. •	• I can list some of the benefits of earthworms to the soil. • I can identify the layers in a sedimentation jar. • I can describe the size of the particles in a sedimentation jar. **Working scientifically** • I can accurately draw the layers of sediment in a sedimentation jar. • I can accurately label the layers of	Recognise that soils are made from rocks and organic matter. WS: Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.	• **earthworm** • **gravel** • **sedimentation**	• Whiteboards and pens (one each). • Equipment for the sedimentation jars activity (per pair s. see Attention grabber): o 1 large glass jar (with lid); o access to water; o 1 soil sample (see Teacher knowledge).

		sediment in a sedimentation jar			
Assessment: Assess topic using end of unit quiz and assessment sheet.					

Science s Year 3 s Medium Term Plan
Spring 2 Light and shadows:

Lesson	Learning Objective	Success Criteria	National Curriculum Links	Vocabulary	Resources
One: Sources of light.	To explain the role of light sources. Working scientifically	- I can recall examples of light sources and those that do not give out light.	Recognise that they need light in order to see things and that dark is the absence of light.	- To explain the role of light sources.	- Glow sticks or alternative interesting light sources such as light wands or fibre

	To plan and draw a results table.	- I can describe ways to protect my eyes from harm. - I can recall that darkness is the absence of light. - Working scientifically - I can recall what information needs recording to decide the number of columns. - I can suggest suitable headings for the results table. - I can record information in the correct columns.	Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. WS: Asking relevant questions and using different types of scientific enquiries to answer them. 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.	- Working scientifically - To plan and draw a results table.	optic lights (a few to pass around s. see Attention grabber). - Rulers (one each). - Black bag with a few items inside (one between each table s. see Main event). - UV experiment set up in sunlight for at least 10 minutes (one teacher demonstration set s. see Teacher knowledge): - 1 transparent, sealable bag containing UV beads or sticker; - 1 transparent, sealable bag with UV beads or stickers covered by a single layer of tissue; - 1 transparent, sealable bag with UV beads or stickers covered by a thick fabric; - 1 transparent, sealable bag with UV beads or stickers covered by sunscreen; - some beads or stickers stored in the dark. - Link: 24 hours of daylight in the summer at Eagle Summit Alaska on VideoLink
Two: What is reflection?	To compare light reflecting on different surfaces.	- I can describe what happens when light reflects. - I can give examples of reflective surfaces or materials.	Notice that light is reflected from surfaces. WS: Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.	- reflect - reflection - reflective (shiny)	- Mirrors (one between two s. see Attention grabber). - Equipment for measuring

		- I can describe factors that may affect the quality of a reflected image.	Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.		reflection (one between two s. see Main event): - various reflective (shiny) materials or objects left within the classroom; - a tablet with a light meter app downloaded (or data logger/light meter s. see Teacher knowledge). - Reflective surfaces that produce imperfect images (one each s. see Main event): - trays of water with black paint or food colouring mixed in; - flexible sheet mirror; - metal spoons, using either the inside or outside of the spoon; - flattened tin foil; - metallic cups or pots. - Link: The World's blackest paint
Three: Where do shadows come from?	To recognise which materials cast a shadow. Working scientifically To ask testable questions and plan how to answer them.	I can describe how shadows form. I can identify patterns between groups of materials and the shadows produced. I can recall factors that affect the way a shadow appears. Working scientifically	Recognise that shadows are formed when the light from a light source is blocked by an opaque object. WS: Asking relevant questions and using different types of scientific enquiries to answer them. Setting up simple practical enquiries, comparative and fair tests. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.	cast a shadow opaque shadow translucent transparent	Equipment for testing materials (one between two s. see Main event): a torch; a plain piece of paper; a variety of materials that are opaque,

		I can identify if a question is testable. I can explain whether a question is testable or not. I can plan ways to answer a testable question.	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.		transparent and translucent in a variety of colours (see Teacher knowledge for suggestions). Sticky notes (one each). Whiteboards and pens or plain paper (one each). Link: Australia's Got Talent
Four: Shadows throughout the day.	To summarise how shadows change throughout the day. Working scientifically To evaluate a method.	I can recall what causes shadows to change throughout the day. I can describe the pattern of changing shadows throughout the day. Working scientifically I can identify something as an advantage or disadvantage of a method. I can explain why something is an advantage or disadvantage of a method. - I can suggest an improvement to the experiment.	To summarise how shadows change throughout the day. Working scientifically To evaluate a method. WS: Asking relevant questions and using different types of scientific enquiries to answer them. Setting up simple practical enquiries, comparative and fair tests. 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. Using straightforward scientific evidence to answer questions or to support their findings.	evaluate prove	Equipment to explore shadow patterns (one s per table s see Attention grabber): a whiteboard and pen; some animal figures; a torch. Equipment to investigate shadows throughout the day (one between three see Main event): a torch, preferably with a single bulb; 2 connecting cubes; a sheet of A3 plain paper; a 30 cm ruler. Equipment to investigate shadows throughout the day outside (one set for the class s see Teacher knowledge): an upright object; chalk; a metre ruler.
Five: Investigating shadows	To investigate how the distance of the light source affects the size of its shadow. Working scientifically To find patterns in data and form conclusions	I can name factors that change the size of a shadow. I can describe how the light source's distance affects the shadow's size. Working scientifically I can describe patterns in data.	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. WS:	conclusion - relationship	Equipment for investigating shadows (one set between two s see Main event): a whiteboard and pen; a ruler;

		I can quote values as evidence of patterns in data. I can identify odd results that do not fit the pattern. I can use patterns to make predictions for missing data.	Pupils should be taught to use the following practical scientific methods, processes and skills: 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. Using straightforward scientific evidence to answer questions or to support their findings.		a small piece of modelling dough; a lolly stick; 5 cm square of opaque, black paper or card; sticky tape; scissors; a torch; 2 bulldog clips (optional).
Six: Using light and shadows	To tell a story using shadow puppets. Science in action To recall how different people work with light and shadows.	I can explain why a particular material is appropriate to make a shadow puppet. I can use my knowledge of shadows to animate a shadow puppet. Science in action I can name different examples of people who work with light and shadows. I can describe how different people work with light and shadows..	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. WS: Identifying differences, similarities or changes related to simple scientific ideas and processes.	shadow puppet	Equipment to make shadow puppets (to share around the class s see Main event): cardboard; scissors; glue sticks; sticky tack; lolly sticks or straws; one torch per group; a range of different materials that can be used for other props, such as fabrics, coloured acetate, pipe cleaners and connecting cubes. Shadow puppet theatre (one for the children to present

					from s. see Teacher knowledge).
Assessment: Assess topic using end of unit quiz and assessment sheet.					

Science Year 3 - Medium Term Plan
Summer 1: Plant reproduction

Describing the life cycle of a flowering plant and carrying out tests to investigate plant structure and function.

Lesson	Learning Objective	Success Criteria	National Curriculum Links	Vocabulary	Resources
One: Plant growth	To identify the growth and survival needs of plants. Working scientifically To pose relevant questions.	• I can identify that plants need air, water, light, nutrients and room to grow. • I can describe how these needs vary in some plants. **Working scientifically** • I can identify reasons a question may not be testable in the classroom. • I can describe how to gather evidence to answer a testable question. • I can pose a testable question. -	• 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. **Working scientifically** Pupils should be taught to use the following practical scientific methods, processes and skills: • Asking relevant questions and using different types of scientific enquiries to answer them. • Setting up simple practical enquiries, comparative and fair tests.	- **air** - **soil** - **space** - **sunlight** - **testable** - **water** -	- Glue sticks (one between two). - Equipment for the plant growth enquiry (see Main event): o 2 of the same plants (e.g. bean plants or geraniums ≤ see Teacher knowledge); o 2 labels to identify the plants as A and B; o clear plastic bags (enough to cover the leaves of one of the plants); o twist ties to secure the bags in place. -
Two: Structure and function	• To describe the relationship between structure and function in plants. **Working scientifically** • To design simple results tables.	• I can identify parts of flowering plants. • I can describe the function of each part. **Working scientifically** • I can describe the purpose of a table. • I can give a table a heading. • I can design a table for gathering results. -	• 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. **Working scientifically** Pupils should be taught to use the following practical scientific methods, processes and skills: • Setting up simple practical enquiries, comparative and fair tests. • Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.	- **absorb** - **flower** - **leaves** - **nutrients** - **stem/trunk** - **roots** -	- Whiteboards and pens (one each). - A flowering plant (one for each table). - Plants A and B from Lesson 1: Plant growth. - Scissors (one between two). - Glue sticks (one between two). - Equipment for the plant growth enquiry (see Main event): o 3 of the same plants (e.g. geraniums ≤ see Teacher knowledge); o 3 labels to identify the plants as A, B and C; o measuring cylinder or syringe; o access to water. -
Three: Transporting water	• To investigate how water is transported in plants. **Working scientifically**	• I can label parts of the plant involved in water transport. • I can identify the functions of the stem.	Investigate the way in which water is transported in plants. **orking scientifically** pils should be taught to use the following practical scientific methods, processes and skills:	• **nutrients** • **stem** • **support** • **transport** • **water**	• Equipment for the water absorption teacher demonstration (see Attention grabber): o food colouring;

	• To plan a simple enquiry.	• I can describe how water travels through a plant. **Working scientifically** • To suggest what observations to make and how long to make them for. • To decide on equipment that might be useful.	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. Using straightforward scientific evidence to answer questions or to support their findings.		○ a small amount of water; ○ 1 small dish; ○ kitchen paper (one sheet). •Equipment for the Chrysanthemum teacher demonstration (set up at least 24 hours before the lesson s. see Teacher knowledge): ○ food colouring; ○ 2 glasses or beakers; ○ 100 ml of water for each beaker; ○ 2 Chrysanthemums; ○ scissors or a knife. •Equipment for the celery investigation (see Main event): ○ 1 stick of celery (one between two); ○ 1 glass or beaker (one between two); ○ 100 ml of water (one between two); ○ 1 measuring cylinder (one per table); ○ 5s10 drops of food colouring (one between two); ○ 1 table knife (one per table); ○ 1 spoon (one per table); ○ 1 magnifying glass (one per table). •Equipment for the light enquiry (one for the teacher s. see Wrapping up): ○ cress seeds; ○ 2 pads of cotton wool; ○ 2 Petri or small dishes; ○ water.
Four: Flowers	• To explore the role of flowers in the life cycle of a plant. **Working scientifically**	• I can describe the plant life cycle. • I can identify the features of flowers.	• Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. **Working scientifically**	- **female** - **flower** - **fruit** - **germination** - **male** - **petal**	- Equipment for the flower mystery box (see Teacher knowledge): ○ 1 opaque box; ○ honey; ○ a floral scent;

	• To complete, read and interpret data in a bar chart.	• I can describe the role of flowers in pollination and fertilisation. **Working scientifically** • I can identify the value of a bar in a bar chart. • I can complete a bar chart. -	Pupils should be taught to use the following practical scientific methods, processes and skills: • Asking relevant questions and using different types of scientific enquiries to answer them. • Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further 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.	- **pollen** - **pollination** - **seed** - **seed formation** -	○ seeds; ○ fruit. - Lilies (one flower per table s see Main event). - Scissors (one each). - Glue sticks (one between two). - Coloured pencils (two each). - Each child's *Activity: How does light affect plant growth?* s results from Lesson 3: Transporting water. -
Five: Evaluating an enquiry	• To apply knowledge of plant life and growth. **Working scientifically** • To identify and suggest changes to an enquiry.	• I can identify the effects of different variables on plant growth. • I can apply my knowledge of plant growth to draw a conclusion. **Working scientifically** • I can say whether a step in a method was good practice. • I can identify steps that were difficult to control. • I can comment on the quality of the results. -	• 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. **Working scientifically** Pupils should be taught to use the following practical scientific methods, processes and skills: • 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. • 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.	- **conclude** - **evaluate** - **improve** -	- Whiteboards and pens (one each). - The children's completed *Activity: Air enquiry results* sheet (see Lesson 1: Plant growth). - The children's completed *Activity: Table starter* (see Lesson 2: Structure and function). - The children's completed *Activity: How does light affect plant growth?* s results -
Six: Seed dispersal	• To explore seed dispersal methods. **Working scientifically**	• I can name methods of seed dispersal.	• Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	• **animal dispersal** • **carrying**	• Whiteboards and pens (one between two).

	• To use results to draw conclusions.	• I can group seeds based on their method of dispersal. **Working scientifically** • I can identify a pattern in the results. • I can identify results that don't fit the pattern. • I can use the results as evidence. -	**Working scientifically** Pupils should be taught to use the following practical scientific methods, processes and skills: • Asking relevant questions and using different types of scientific enquiries to answer them. • Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. • Using straightforward scientific evidence to answer questions or to support their findings.	•**disperse** •**dropping** •**eating** •**shaking** •**water dispersal** •**wind dispersal**	• Six tables with a different fruit on each table (see Attention grabber): o kiwi fruit (approximately three); o oranges with pips (approximately three); o apples (approximately three); o seedless grapes (approximately three); o avocado (approximately three); o pepper (approximately three). • Junk modelling materials (a selection for each child – see Main event): o thin card; o corrugated card; o plastic bottles; o tissue paper; o paper; o coloured paper; o bubble wrap. • Scissors (one each). • Glue sticks (one between two). • Masking tape (one per table – see Main event). • A device for taking photos (one for the teacher – see Main event). • Optional: Table knives for tougher to open fruits (one per table). • Link: Assessment – Science Y3: Plant reproduction. • Link: BBC Bitesize - Seed dispersal
Assessment: Assess topic using end of unit quiz and assessment sheet.					

Lesson	Learning Objective	Success Criteria	National Curriculum Links	Vocabulary	Resources
One:		-		-	-
Two:		-		-	-
Three:		-			
Four:		-		-	-
Five:		-		-	-
Six:		-			
Assessment: 1.					