PLAN

Planning for assessment

EYFS Matrices

Opportunities for science in the common EYFS themes

Click on the links in the table below to be taken to the relevant matrix.

Theme	Nursery	Reception
Dinosaurs	Animals, excluding humans	Animals, excluding humans
Farms	Animals, excluding humans Plants	
Food	Materials, including changing materials Plants	
People who help us	Humans Plants	Humans
Pirates	Materials, including changing materials Forces	Materials, including changing materials Forces
Robots	Materials, including changing materials Electricity Light Sound	Materials, including changing materials Earth and space
Space and the planets	Materials, including changing materials	Materials, including changing materials Earth and space Forces
Superheroes	Materials, including changing materials Humans	Materials, including changing materials Earth and space
Vehicles	Materials, including changing materials Electricity Light	Materials, including changing materials Forces Earth and space

	Forces Sound	
Building and construction	Materials, including changing material Electricity Forces Light	Forces Sound
All about me	Humans	Humans
The high street	Humans Materials, including changing materials Electricity Light	Humans
Holidays	Materials, including changing materials	Animals, excluding humans
Castles	Materials, including changing materials	
In the garden	Animals, excluding humans Living things and their habitats Plants	Living things and their habitats Animals, excluding humans
At the seaside	Animals, excluding humans	Animals, excluding humans Living things and their habitats
Under the sea	Animals, excluding humans	Animals, excluding humans
In the woods	Animals, excluding humans	Animals, excluding humans Living things and their habitats
Weather and seasons	Living things and their habitats	Seasonal changes Materials, including changing materials Living things and their habitats Sound Light
Animals	Animals, excluding humans	Animals, excluding humans Living things and their habitats Seasonal changes
Magic, witches and wizards	Materials, including changing materials Light	

PLAN

Planning for assessment

Nursery

Year	Nursery (3 & 4-year-olds)	Topic	Animals, excluding humans

Understanding the World

- Understand the key features of the life cycle of a plant and an animal.
- Begin to understand the need to respect and care for the natural environment and all living things.

Links with other areas of learning

Mathematics

- Talk about and identify the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs' etc.

Expressive Arts and Design

- Create closed shapes with continuous lines, and begin to use these shapes to represent objects.
- Draw with increasing complexity and detail, such as representing a face with a circle and including details.

Prior learning	Future learning
• Explore natural materials, indoors and outside. (Birth to three)	• Recognise some environments that are different to the one in which they live. (Reception) • Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 – Animals, including humans) • Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 – Animals, including humans) • Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Y1 – Animals, including humans)

CREATING APPROPRIATE EXPERIENCES TO INITIATE LEARNING

What adults might provide	What adults might do
Opportunities to learn about the life cycles of animals • Caring for eggs and the young animals that emerge, such as chicks, caterpillars, frogs • Sharing books with information about animal life cycles (fiction and non-fiction) • Looking at and matching pictures of animals and their young • Watching videos of animals and their young and how they change over time	• Encourage children to observe young animals closely and talk about how they change over time. • Encourage children to name and describe animals and their young, including how they change over time, while reading books, watching videos, looking at pictures or playing matching games. • Encourage children to ask questions about different animals and their young.

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- Playing games involving matching or describing animals and their young
- Playing with small world animals, matching adults to their young
- Visiting a farm, zoo or pet shop, particularly to see young animals
- Talking about the sounds adult and young animals make and comparing them
- Drawing adult animals and their young

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- Encourage children to talk about similarities and differences between animals and their young, including patterns, spots or stripes.
- Encourage children to draw animals and their young.

Encouraging scientific enquiry

Observing over time
- How does the … change over time?

Researching using secondary sources
- Find out more about the life cycles of the animals observed.

Classification
- Match animals and their young.

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<tr>
<td>Vocabulary</td>
<td>Common misconceptions</td>
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Model and encourage children to use vocabulary such as:

- egg, chick, bird, caterpillar, cocoon, chrysalis, butterfly, frog spawn, tadpole, froglet, frog, grow, change, die, names of animals and their young, fur, feathers, scales, tail, wings, beak, claws, paws, hooves, swim, walk, run, jump, jump, fly, patterns, spots, stripes

Expose children to supplementary vocabulary such as:

- life cycle, mane, webbed feet

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Some children may think:

- all animals lay eggs
- the young animal is fully formed inside an egg and just waiting to hatch
- the young animal is fully formed inside an egg and just grows until it is big enough to hatch
- animals are assembled from body parts within the egg
- all animal young are just small versions of the adult and get bigger
- animals such as cows and hens “make” milk and lay eggs for us [humans]
- humans are not animals.

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<tr>
<td>Linked texts</td>
<td>Linked careers</td>
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Traditional stories and nursery rhymes
- The Ugly Duckling
- Old MacDonald had a Farm

Other texts
- The Very Hungry Caterpillar & The Mixed-Up Chameleon by Eric Carle
- Counting Creatures & Monkey Puzzle by Julia Donaldson
- Who is in the egg? by Alexandra Milton
- The Odd Egg & Monkey and Me by Emily Gravett
- Owl Babies by Martin Waddell
- Baby Goz by Steve Weatherill
- Cock-A-Doodle-Moo by Bernard Most

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Opportunities in the role-play corner to care for adult animals and their young

- Vet
- Zookeeper
- Farmer
- Pet shop
- Animal hospital
- Stable

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</table>

• Brown Bear, Brown Bear, What Do You See? & Polar Bear, Polar Bear, What Do You Hear? by Bill Martin Jr • Wibbly Pig Picks a Pet by Mick Inkpen • Farmyard Hullabaloo by Giles Andreae & David Wojtowycz • Rosie's Walk by Pat Hutchins • Little Chick's First Day by Paula McBride • Poo at the Zoo by Sarah Eason • Lucky Little Mouse by A H Benjamin • Dora's Egg by Julie Sykes • The Trouble with Tadpoles by Sam Godwin • Stellaluna by Janell Cannon • Moo, Baa, La La La! by Sandra Boynton	

HOW CHILDREN MIGHT SHOW THEIR LEARNING	
Characteristics of effective teaching and learning	
• Playing and exploring – children investigate and experience things, and 'have a go' • Active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements • Creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things	
Demonstrating skills and showing understanding	
What a child might be doing	**Possible evidence of learning**
Children ask questions, make observations and talk about what they are doing and have found out while carrying out a range of activities, such as: • learning about the life cycles of animals • comparing adult animals to their young • observing how young animals change over time. **Children sort:** • animals and their young. **Children record their observations when:** • comparing animals and their young • observing how young animals change over time.	• Can name and describe animals they have encountered. • Can talk about how they cared for the eggs/animals. • Can describe how the animals changed over time. • Can match animals to their young and name them.

Year	Nursery (3 & 4-year-olds)	Topic	Humans

Understanding the World

- Use all their senses in hands-on exploration of natural materials.
- Begin to make sense of their own life-story and family's history.
- Understand the key features of the life cycle of a plant and an animal.

Links with other areas of learning

Personal, Social and Emotional Development

- Be increasingly independent in meeting their own care needs, e.g. brushing teeth, using the toilet, washing and drying their hands thoroughly.
- Make healthy choices about food, drink, activity and toothbrushing.

Expressive Arts and Design

- Create closed shapes with continuous lines, and begin to use these shapes to represent objects.
- Draw with increasing complexity and detail, such as representing a face with a circle and including details.

Prior learning	Future learning
• Explore natural materials, indoors and outside. (Birth to three) • Make connections between the features of their family and other families. (Birth to three) • Notice differences between people. (Birth to three)	• Talk about members of their immediate family and community. (Reception) • Name and describe people who are familiar to them. (Reception) • Describe what they see, hear and feel whilst outside. (Reception) • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 – Animals, including humans)

CREATING APPROPRIATE EXPERIENCES TO INITIATE LEARNING	
What adults might provide	**What adults might do**
Opportunities to learn about the life cycles of humans • Looking at photographs of the children as babies • Sharing books about how to look after a baby • Talking to an expectant mother, parent with a baby and elderly person • Talking to adults about photographs of the adults at different ages • Identifying pictures of babies, toddlers, children, adults and old people in magazines or other media • Drawing humans at different ages **Opportunities to learn about how to take care of themselves** • Talking about how they look after their own health and hygiene • Noticing when they feel hot and cold and how to respond to this • Choosing appropriate materials to protect themselves from the Sun **Opportunities to learn about their senses** • Exploring the natural environment with their senses • Exploring objects using their senses e.g. smelling pots, feely bags, listening pots etc. • Sorting collections of natural objects using their senses e.g. bark, pebbles, feathers, seeds, cones, leaves, sticks • Looking closely at natural objects using a magnifying glass or app on a tablet • Going on a sound walk • Playing guessing games where children pick an object and either describe it or are asked questions in order to identify it • Playing listening games • Sharing books about senses and sensory impairments • Tasting food	• Encourage children to describe how they have changed since they were babies. • Encourage children to talk about how to care for a baby. • Encourage children to ask questions of an expectant mother, parent with a baby and elderly person. • Encourage children to talk about what they can do now that they were not able to do when they were babies, including how to look after themselves. • Encourage children to talk about objects using their senses to describe them. **Encouraging scientific enquiry** *Classification* • Sort images of humans according to their age. • Sort using different senses. Which do you like/not like? *Observing over time* • How does a baby change over time? • *Research using secondary sources* • Find out about the human life-cycle from an expectant mother, parent with a baby and elderly person.

Vocabulary	Common misconceptions
Model and encourage children to use vocabulary such as: • grow, change, baby, toddler, child, adult, old person, smell, taste, touch, feel, hear, see, blind, deaf Expose children to supplementary vocabulary such as: • life cycle, senses, elderly, die (if appropriate)	Some children may think: • babies are in a mummy's stomach.
Linked texts	**Linked careers**
Traditional stories and nursery rhymes • Goldilocks and the Three Bears *Other texts* • Handa's Surprise by Eileen Brown • Za-za's Baby Brother by Lucy Cousins • My Mum and Dad Make Me Laugh by Nick Sharratt • My Grandpa by Marta Altés • I Want My Potty! by Tony Ross • How Do Your Senses Work? by Judy Tatchell • That's Not My Collection by Usborne • Once There Were Giants by Martin Waddell	**Opportunities in the role-play corner to learn about the lifecycle of humans** • Midwife • Hospital • Retirement home

HOW CHILDREN MIGHT SHOW THEIR LEARNING	
Characteristics of effective teaching and learning	
• Playing and exploring – children investigate and experience things, and 'have a go' • Active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements • Creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things	
Demonstrating skills and showing understanding	
What a child might be doing	**Possible evidence of learning**
Children ask questions, make observations using simple equipment and talk about what they are doing and have found out while carrying out a range of activities, such as: • learning about the life cycles of humans • learning about how to take care of themselves • learning about their senses. **Children sort:** • humans by age/life stage • objects using their senses. **Children record their observations when:** • observing humans at different ages/life stages.	• Can talk about how they have changed since they were babies. • Can describe humans at different ages/life stages. • Can talk about how they look after themselves and compare this to how a baby is looked after. • Can compare smells, sounds, tastes and textures. • Can talk about what they see when using a magnifying glass or an app on a tablet. • Can talk about how they use their senses when exploring the world around them and natural objects.

Year	Nursery (3 & 4-year-olds)	Topic	Living things and their habitats

Understanding the World

- Use all their senses in hands-on exploration of natural materials.
- Explore collections of materials with similar and/or different properties.
- Begin to understand the need to respect and care for the natural environment and all living things.

Links with other areas of learning

Mathematics

- Describe a familiar route.
- Discuss routes and locations, using words like 'in front of' and 'behind'.
- Talk about and identify the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs' etc.
- Extend and create ABAB patterns – stick, leaf, stick, leaf.

Expressive Arts and Design

- Create closed shapes with continuous lines, and begin to use these shapes to represent objects.
- Draw with increasing complexity and detail, such as representing a face with a circle and including details.

Prior learning	Future learning
• Explore natural materials, indoors and outside. (Birth to three)	• Draw information from a simple map. (Reception) • Explore the natural world around them. (Reception) • Describe what they see, hear and feel whilst outside. (Reception) • Recognise some environments that are different to the one in which they live. (Reception)

CREATING APPROPRIATE EXPERIENCES TO INITIATE LEARNING

What adults might provide	What adults might do
Opportunities to explore the surrounding natural environment • Going on local nature walks • Identifying natural objects and things left by humans • Gathering natural objects from nature walks to include in a collection for the nature table e.g. stones, leaves, seeds, conkers, pinecones, acorns, twigs, bark, shells, feathers	• Encourage children to use all appropriate senses to explore the parts of plants on the walk, including the leaves, stems/trunks, flowers, seeds, berries and fruit. • Encourage children to identify things left by humans in the surrounding natural environment e.g. litter. • Remind children not to damage the plants in any way and only gather natural objects from the ground.

<table>
<tr><td>Opportunities to explore natural objects from the surrounding environment
Using a magnifying glass or a tablet with an app to observe the natural objects in a collection closely
Drawing natural objects in the collection
Grouping together natural objects that are similar in the collection
Using natural objects to make pictures and patterns</td><td>Encourage children to talk about the objects in the collection, including where they came from on the walk and whether they were part of a plant, animal or neither.
Encourage children to talk about the natural objects that they are observing closely, drawing and sorting.
Encourage children to look for patterns on the natural objects in the collection.
Encourage children to identify items in the collection that are the same or similar.
Encourage children to ask questions about the surrounding natural environment and the natural objects in the collection.
Encouraging scientific enquiry

Classification
Find and identify natural objects to include in the collection.
Which natural objects are from plants, animals or neither?</td></tr>
<tr><td>Vocabulary</td><td>Common misconceptions</td></tr>
<tr><td>Model and encourage children to use vocabulary such as:
natural, plant, animal, leaves, seeds, conkers, acorns, twigs, bark, shells, feathers, pebbles, stones, same, different, pattern
Expose children to supplementary vocabulary such as:
living, dead, similar</td><td>Some children may think:
shells are only found at the beach
feathers are from dead birds.</td></tr>
<tr><td>Linked texts</td><td>Linked careers</td></tr>
<tr><td>Other texts
Percy the Park Keeper by Nick Butterworth</td><td>Opportunities in the role-play corner to explore the surrounding natural environment
Tree surgeon
Park keeper
Farmer
Gardener</td></tr>
</table>

HOW CHILDREN MIGHT SHOW THEIR LEARNING	
Characteristics of effective teaching and learning	
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Demonstrating skills and showing understanding	
What a child might be doing	**Possible evidence of learning**
Children ask questions, make observations using simple equipment and talk about what they are doing and have found out while carrying out a range of activities, such as: • exploring the surrounding natural environment • exploring natural objects from the surrounding environment. **Children sort:** • natural objects. **Children record their observations when:** • drawing natural objects from the collection.	• Can name and describe objects in the collection, including patterns they notice on them. • Can group similar objects together. • Can draw natural objects, including some patterns observed on them. • Can identify natural objects that have come from plants and animals. • Children do not damage the living things they encounter in the natural environment. • Children show care and encourage others to care for things they encounter in the natural environment.

Year	Nursery (3 & 4-year-olds)	Topic	Plants

Understanding the World

- Use all their senses in hands-on exploration of natural materials.
- Explore collections of materials with similar and/or different properties.
- Plant seeds and care for growing plants.
- Understand the key features of the life cycle of a plant and an animal.
- Begin to understand the need to respect and care for the natural environment and all living things.

Links with other areas of learning

Mathematics

- Talk about and identify the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs' etc.

Expressive Arts and Design

- Create closed shapes with continuous lines, and begin to use these shapes to represent objects.
- Draw with increasing complexity and detail, such as representing a face with a circle and including details.

Prior learning	Future learning
• Explore natural materials, indoors and outside. (Birth to three)	• Observe and describe how seeds and bulbs grow into mature plants. (Y2 – Plants) • Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. (Y2 – Plants) • Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Y3 – Plants)

CREATING APPROPRIATE EXPERIENCES TO INITIATE LEARNING

What adults might provide	What adults might do
Opportunities to grow plants • Visiting a garden centre • Gathering seeds from the surrounding natural environment • Gathering seeds from fruit • Observing collections of seeds and bulbs using a magnifying glass or an app on a tablet • Drawing seeds and bulbs • Planting and caring for seeds and bulbs • Growing vegetable tops	• Encourage children to talk about the range of seeds, bulbs, plants and gardening tools they saw on their trip to the garden centre. • Encourage children to talk about the seeds they gathered from the ground from the surrounding natural environment, from pieces of fruit and plants they have grown. • Remind children not to damage the plants in any way and only gather seeds from the ground. • Encourage children to describe and compare seeds and bulbs, including any patterns on them that they notice.

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- Observing and photographing/drawing how plants grow and die
- Observing and photographing/drawing what happens when fruit, vegetables and flowers are left to decay
- Gathering seeds and digging up bulbs of the plants they grow
- Designing seed packets
- Using what they grow to make food to eat
- Sharing books about plants and growing plants

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- Encourage children to separate seeds from bulbs.
- Encourage children to use non-standard measures, such as a spacing stick, to space seeds and bulbs appropriately to give them space to grow.
- Encourage children to talk about plants as they grow.
- Encourage children to talk about plants they have at home.
- Encourage children to talk about how fruit and vegetables decay and flowers die.
- Encourage children to use all their appropriate senses to explore the parts of plants, including the leaves, stems/trunks, flowers, seeds, berries and fruit, as they grow.
- Encourage children to ask questions about growing plants.

Encouraging scientific enquiry

Comparative testing

- Compare how quickly different seeds/bulbs germinate.
- Compare how different vegetable tops grow.

Observing over time

- How does a plant change as it grows?
- What happens to fruit, vegetables and flowers when left over time?

Researching using secondary sources

- Look at seed and bulb packets to learn how to plant and care for them.

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<td>Vocabulary</td>
<td>Common misconceptions</td>
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Model and encourage children to use vocabulary such as:

- plant, leaf, stem, trunk, branch, root, bark, flower, petal, seed, berry, fruit, vegetable, bulb, plant, hole, dig, water, weed, grow, shoot, die, dead, soil

Expose children to supplementary vocabulary such as:

- seedling, healthy, unhealthy, strong, sturdy, wilting, decay, mould, life cycle

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Some children may think:

- trees are not plants
- there is a young plant inside a seed or bulb
- bulbs are big seeds
- big plants grow from big seeds and big bulbs
- fruit and vegetables come from the supermarket
- plants grow at night or when we are not watching them.

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<td>Linked texts</td>
<td>Linked careers</td>
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Traditional stories and nursery rhymes

- Jack and the Beanstalk
- The Giant Turnip

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Opportunities in the role-play corner to explore growing plants

- Greengrocer/farm shop
- Gardener/allotment owner
- Farmer

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Other texts • Jim and the Beanstalk by Raymond Briggs • Titch by Pat Hutchins • Oliver's Vegetables by Alison Bartlett & Vivian French • We Planted a Pumpkin by Rob Ramsden	• Orchard worker • Market gardener • Garden centre manager

HOW CHILDREN MIGHT SHOW THEIR LEARNING	
Characteristics of effective teaching and learning	
• Playing and exploring – children investigate and experience things, and 'have a go' • Active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements • Creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things	
Demonstrating skills and showing understanding	
What a child might be doing	**Possible evidence of learning**
Children ask questions, make observations using simple equipment and talk about what they are doing and have found out while carrying out a range of activities, such as: • growing plants. **Children use equipment to measure when:** • planting seeds and bulbs. **Children sort:** • seeds and bulbs. **Children record their observations when:** • photographing/drawing seeds and bulbs • photographing/drawing seeds and bulbs as they grow over time • photographing/drawing vegetables and fruit as they decay and flowers as they die.	• Can describe some differences between seeds and bulbs. • Can identify seeds and bulbs. • Can talk about how they planted and cared for seeds and bulbs. • Can explain that a seed or bulb grew into a plant and then died. • Children do not damage the living things they encounter in the natural environment. • Children show care and encourage others to care for things they encounter in the natural environment.

	Year	Nursery (3 & 4-year-olds)	**Topic**	Materials, including changing materials

Understanding the World

- Use all their senses in hands-on exploration of natural materials.
- Explore collections of materials with similar and/or different properties.
- Talk about the differences between materials and changes they notice.

Links with other areas of learning

Expressive Arts and Design

- Explore different materials freely, in order to develop their ideas about how to use them and what to make.
- Develop their own ideas and then decide which materials to use to express them.
- Join different materials and explore different textures.

Prior learning	Future learning
• Explore materials with different properties. (Birth to three) • Explore natural materials, indoors and outside. (Birth to three)	• Explore the natural world around them. (Reception) • Describe what they see, hear and feel whilst outside. (Reception) • Distinguish between an object and the material from which it is made. (Y1 – Everyday materials) • Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 – Everyday materials) • Describe the simple physical properties of a variety of everyday materials. (Y1 – Everyday materials) • Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 – Everyday materials)

CREATING APPROPRIATE EXPERIENCES TO INITIATE LEARNING

What adults might provide	What adults might do to support this
Opportunities to explore a range of materials in a sensory way especially through touch, including more unusual materials • Exploring oobleck (cornflour and water), gellibaff, shaving foam, foam burst shower gel etc.	• Encourage children to talk about the materials they explore, using their senses. • Encourage children to choose from a range of materials when making models. • Encourage children to join materials together to make something. • Support children to name the material they have used. • Encourage children to talk about why they have chosen a particular material, naming at least one property.

<table>
<tr>
<td>Opportunities to shape and join materials
• Building junk models using a range of materials
• Shaping and joining materials using equipment e.g. scissors, hole punch, including when using wood e.g. a hammer and nail

Opportunities to change materials
• Making smoothies
• Mixing ingredients to make playdough, cakes, biscuits, bread, jelly etc.
• Melting chocolate for decorating bakes/biscuits or to combine with other ingredients e.g. refrigerator cake, chocolate crispy cakes
• Comparing cooked and uncooked pasta, noodles, rice or potatoes
• Cooking popcorn in a microwave
• Cooking cakes, biscuits, bread etc.
• Making ice lollies and ice-cream
• Using medical ice packs including self-activated cool pads
• Removing toys from ice
• Adding baking soda and fizzy bath bombs to water
• Adding coloured sweets to water
• Adding currants to fizzy water/lemonade
• Adding bicarbonate of soda to vinegar to make a bubbling potion</td>
<td>• Support children to measure out ingredients following a recipe.
• Encourage children to talk about ingredients.
• Encourage children to talk about the changes when ingredients are mixed, cooked, heated and cooled, frozen and blended.
• Encourage children to ask question about the materials they encounter.

Encouraging scientific enquiry

Classification
• Sort materials using simple properties.
Observing over time
• How does the cake mixture change?
• How does chocolate change when heated?
• How does fruit juice change when put in the freezer?
• How does fruit change when blended?</td>
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<tr>
<td>Vocabulary</td>
<td>Common misconceptions</td>
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<td>Model and encourage children to use vocabulary such as:

• mix, stir, cook, hot, oven, microwave, change, burn, melt, hard, runny, set, freeze, freezer, cold, blended, hard, soft, bendy, stiff, wobbly, wood, plastic, paper, card, fabric

Expose children to supplementary vocabulary such as:

• solid, liquid, rigid, stronger, weaker</td>
<td>Some children may think that:

• a material is better to use because it is ‘bigger’ not thicker, rigid etc.
• the material is ‘box’ not cardboard.</td>
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<tr>
<td>Linked texts</td>
<td>Linked careers</td>
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<tr>
<td>Traditional stories and nursery rhymes
• Gingerbread Man
• Pat a Cake
• Little Red Hen</td>
<td>Opportunities in the role-play corner to shape, join and change materials

• Baker
• Chocolatier
• Laboratory scientist
• Craftsperson in a workshop</td>
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HOW CHILDREN MIGHT SHOW THEIR LEARNING	
Characteristics of effective teaching and learning	
• Playing and exploring – children investigate and experience things, and 'have a go' • Active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements • Creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things	
Demonstrating skills and showing understanding	
What a child might be doing	**Possible evidence of learning**
Children ask questions, make observations and talk about what they are doing and have found out while carrying out a range of activities, such as: • exploring a range of materials • shaping and joining materials • change materials. **Children use equipment to measure when:** • combining and mixing ingredients. **Children sort:** • materials.	• Can name the material they are using. • Can talk about one property of a material. • Can talk about ingredients for recipes. • Can talk about how mixtures change when ingredients are added. • Can talk about how materials change when cooked. • Can talk about how materials change when heated. • Can talk about how materials change when frozen.

	Year	Nursery (3 & 4-year-olds)	Topic	Electricity
	Understanding the World			
	• Explore how things work.			

Prior learning	Future learning
• Repeat actions that have an effect. (Birth to three)	• Identify common appliances that run on electricity. (Y4 - Electricity)

CREATING APPROPRIATE EXPERIENCES TO INITIATE LEARNING	
What adults might provide	**What adults might do**
Opportunities to identify electrical devices • Spotting devices that are plugged into power sockets in the classroom • Spotting devices that use batteries in the classroom • Sorting objects/photographs of objects according to whether they use electricity or not • Sorting objects/photographs of objects according to whether they use batteries and/or mains electricity. • Looking at shopping catalogues that include electrical devices **Opportunities to use battery-powered devices** • Using Code-a-Pillars, Bee-Bots, shopping tills, torches, remote control cars, talk cards/recording devices, hand-held fans **Opportunities to talk about how electrical devices work** • Describing what the devices do e.g. make a sound, make light, move • Suggesting that batteries may need charging or replacing when a device does not work	• Encourage children to find devices that are plugged into sockets. • Tell them to never plug in or unplug devices without adult supervision. • Encourage children to take photographs of electrical devices at home. • Encourage children to switch devices on and off that use batteries. • Tell children to never open the battery compartment of electrical devices without adult supervision. • Encourage children to talk about what electrical devices do. • Encourage children to talk about recharging devices e.g. remote control cars, hearing aids, tablets. • Encourage children to ask questions about electrical devices and how they work. • Encourage children to remind adults to switch off electrical devices to conserve electricity. **Encouraging scientific enquiry** *Classification* • Identify objects that use electricity to work. • Identify devices that use batteries and/or mains electricity.

Vocabulary	Common misconceptions
Model and encourage children to use vocabulary such as: • battery, plug, socket, electricity, wire, sound, light, move Expose children to supplementary vocabulary such as: • mains electricity, device, appliance, electrical	Some children may think: • all batteries can be recharged • rechargeable devices do not have batteries.
Linked texts	**Linked careers**
	Opportunities in the role-play corner to talk about objects that use electricity • Electrician • Electrical goods retailer

HOW CHILDREN MIGHT SHOW THEIR LEARNING	
Characteristics of effective teaching and learning	
• Playing and exploring – children investigate and experience things, and 'have a go' • Active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements • Creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things	
Demonstrating skills and showing understanding	
What a child might be doing	**Possible evidence of learning**
Children ask questions, make observations and talk about what they are doing and have found out while carrying out a range of activities, such as: • identifying electrical devices • using battery-powered devices. **Children sort:** • electrical devices.	• Can identify devices that use batteries. • Can identify devices that use mains electricity. • Can switch battery-powered devices on and off. • Can describe what electrical devices do.

	Year	Nursery (3 & 4-year-olds)	Topic	Light
	Understanding the World			
	• Explore how things work. • Talk about the differences in materials and changes they notice.			

Prior learning	Future learning
• Repeat actions that have an effect. (Birth to three)	• Describe what they see, hear and feel whilst outside. (Reception) • Recognise that they need light in order to see things and that dark is the absence of light. (Y3 – Light) • Notice that light is reflected from surfaces. (Y3 – Light) • Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. (Y3 – Light) • Recognise that shadows are formed when the light from a light source is blocked by an opaque object. (Y3 – Light) • Find patterns in the way that the size of shadows change. (Y3 – Light)

CREATING APPROPRIATE EXPERIENCES TO INITIATE LEARNING	
What adults might provide	**What adults might do**
Opportunities to explore light sources • Switching light sources on and off • Comparing the brightness of light sources • Using different light sources in dark dens with reflective and fluorescent stickers	• Model asking questions about light sources. • Encourage children to compare the brightness of different light sources. • Encourage children to talk about what they see in the dark den and how it changes when a light source is on or off. • Encourage children to talk about what they see when they shine light onto or through different objects or materials. • Encourage children to talk about how their reflection changes in different mirrors. • Support children to notice that they see their reflection on shiny objects and encourage them to predict which objects they will see their reflection in. • Encourage children to draw what they see in different mirrors. • Encourage children to ask questions about light sources.

<table>
<tr><td>Opportunities to shine light on or through different materials
• Shining light on or through different objects and materials e.g. reflective, non-reflective, transparent, translucent, opaque, coloured filters, holographic paper, glitter ball
• Looking at their reflection in different types of mirrors e.g. plane, convex, concave and wobbly
• Looking for their reflection in other objects
• Making glitter pictures or pictures with reflective materials</td><td>Encouraging scientific enquiry

Comparative testing
• Compare how bright different light sources are.
• Compare how reflective different materials are.
Classification
• Which materials are reflective to use for an outside mobile?
• Which fabrics are reflective to help us be seen at night?
• Which materials block light to help us protect ourselves from the Sun?</td></tr>
<tr><td>Vocabulary</td><td>Common misconceptions</td></tr>
<tr><td>Model and encourage children to use vocabulary such as:
• light, torch, bulb, lamp, spotlight, shiny, bright, brighter, brightest, Sun, shine, glow, mirror
Expose children to supplementary vocabulary such as:
• light source, reflective, non-reflective, dim, dimmer, dimmest</td><td>Some children may think:
• light is only found in bright places
• shiny objects are light sources
• the moon is a light source.</td></tr>
<tr><td>Linked texts</td><td>Linked careers</td></tr>
<tr><td>Other texts
• We’re Going on a Bear Hunt by Michael Rosen
• Alfie Goes Camping by Shirley Hughes
• Can’t You Sleep Little Bear by Martin Waddell
• The Rabbit, the Dark and the Biscuit Tin by Nicola O'Byrne</td><td>Opportunities in the role-play corner to explore light sources
• Lighthouse keeper
• Railway signal person
• Theatre lighting designer
• Night construction worker
• Miner
• Road crossing supervisor</td></tr>
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HOW CHILDREN MIGHT SHOW THEIR LEARNING	
Characteristics of effective teaching and learning	
• Playing and exploring – children investigate and experience things, and 'have a go' • Active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements • Creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things	
Demonstrating skills and showing understanding	
What a child might be doing	**Possible evidence of learning**
Children ask questions, make observations using simple equipment and talk about what they are doing and have found out while carrying out a range of activities, such as: • exploring light sources • shining light on or through different materials. **Children sort:** • light sources • materials. **Children record their observations when:** • looking at their reflection in different mirrors.	• Can name different light sources. • Can describe and compare the brightness of light sources. • Can identify reflective and non-reflective materials. • Can identify materials that block light. • Can spot their own reflection in objects.

Year	Nursery (3 & 4-year-olds)	Topic	Forces

Understanding the World

- Explore how things work.
- Explore and talk about different forces they can feel.
- Talk about the differences between materials and changes they notice.

Links with other areas of learning

Expressive Arts and Design

- Join different materials and explore different textures.

Prior learning	Future learning
• Repeat actions that have an effect. (Birth to three)	• Explore the natural world around them. (Reception) • Describe what they see, hear and feel whilst outside. (Reception) • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 – Uses of everyday materials) • Compare how things move on different surfaces. (Y3 – Forces and magnets) • Observe how magnets attract or repel each other and attract some materials and not others. (Y3 – Forces and magnets) • 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. (Y3 – Forces and magnets) • Describe magnets as having two poles. (Y3 – Forces and magnets) • Predict whether two magnets will attract or repel each other, depending on which poles are facing. (Y3 – Forces and magnets) • Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. (Y5 – Forces)

CREATING APPROPRIATE EXPERIENCES TO INITIATE LEARNING

What adults might provide	What adults might do
Opportunities to feel forces • Pushing floating objects under water e.g. balloons, table tennis balls etc. • Exploring magnets of different shapes and sizes	• Encourage children to push floating objects under water and talk about how it feels the further they push the object under the water. • Encourage children to talk about what happens when they release an object under the water.

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- Exploring springs of different sizes, both compression and extension springs
- Using bikes and scooters on different surfaces and ramps

Opportunities to explore how things work

- Testing a range of objects to find out if they float or sink
- Playing games that contain springs e.g. bagatelle
- Playing with wind-up toys
- Racing wind-up toys
- Playing with gears and pulleys e.g. sets of gears, large playground pulleys etc.
- Playing with magnetic toys e.g. train carriages joined by magnets, magnetic construction kits etc.

Opportunities to explore how objects/materials are affected by forces

- Pushing, pulling, twisting and bending malleable (e.g. modelling clay, playdough, springs, pipe cleaners, elastics, sponges etc.) and non-malleable objects/materials
- Cutting and joining objects/materials e.g. wood, building kits with nuts and bolts etc.

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- Encourage children to play with the magnets talking about how they push away or pull towards each other.
- Encourage children to use bikes and scooters on different surfaces.
- Encourage children to ride scooters and bikes up and down ramps.
- Encourage children to drop objects into water and observe what happens.
- Encourage children to predict whether objects will float or sink.
- Encourage children to talk about how they change the shape of objects.
- Encourage children to talk about how they join materials together using different forces.
- Encourage children to talk about what they feel when using the woodwork tools and building kits.
- Encourage children to talk about how toys containing springs and elastics work.
- Encourage children to talk about how wind-up toys, pulleys and gear toys work.
- Encourage children to ask questions about forces, such as “What happens if I …?”

Encouraging scientific enquiry

Comparative testing

- Compare the path of different wind-up toys.
- Compare how far different wind-up toys move.
- Compare the speed and direction of gears.
- Compare how easy or hard it is to lift an object with or without a pulley.
- Compare how easy it is to ride a scooter or bike on different surfaces.

Classification

- Sort objects according to whether they float or sink.
- Sort objects/materials according to whether their shape can be changed.

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<td>Vocabulary</td>
<td>Common misconceptions</td>
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Model and encourage children to use vocabulary such as:

- object, float, sink, water, up, down, top, bottom, push, pull, magnet, spring, squash, bend, twist, stretch, turn, spin, smooth, rough, fast, slow

Expose children to supplementary vocabulary such as:

- rising, falling, attract, repel, faster, slower, pulley, gear, elastic

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Some children may think:

- big objects sink
- heavy objects sink
- an object such as an ice cube which is partially submerged is floating and sinking at the same time.

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Linked texts	Linked careers
Traditional stories and nursery rhymes • Wind the Bobbin Up *Other texts* • And Everyone Shouted "Pull" by Claire Llewellyn • Oscar and the Cricket by Geoff Waring • Newton and Me by Lynne Mayer • Astrokittens: Cosmic Machines by Dominic Walliman & Ben Newman • The Little Red Train: The Runaway Train by Benedict Blathwayt • Dig Dig Digging by Margaret Mayo • It's Only Stanley by Jon Agee	**Opportunities in the role-play corner to use forces to cut and join materials and objects** • Builder • Plumber • Carpenter • Engineer

HOW CHILDREN MIGHT SHOW THEIR LEARNING	
Characteristics of effective teaching and learning	
• Playing and exploring – children investigate and experience things, and 'have a go' • Active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements • Creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things	
Demonstrating skills and showing understanding	
What a child might be doing	**Possible evidence of learning**
Children ask questions, make observations and talk about what they are doing and have found out while carrying out a range of activities, such as: • feeling forces • exploring how things work • exploring how objects/materials are affected by forces. **Children sort:** • objects that float and sink • malleable and non-malleable materials.	• Can identify objects that float and sink. • Can identify objects whose shape can be changed and talk about how they changed their shape. • Can describe what they feel when exploring magnets. • Can describe what they feel and see when pushing, pulling, bending and twisting objects e.g. springs, elastics, wind-up toys, gears, pulleys etc. • Can describe what they feel when riding bikes and scooters on different surfaces and ramps.

Year	Nursery (3 & 4-year-olds)	Topic	Sound

Understanding the World

- Explore how things work.

Links with other areas of learning

Expressive Arts and Design

- Use drawing to represent ideas like movement or loud noises.
- Listen with increased attention to sounds.
- Respond to what they have heard, expressing their thoughts and feelings.
- Explore different materials freely, in order to develop their ideas about how to use them and what to make.
- Develop their own ideas and then decide which materials to use to express them.
- Join different materials and explore different textures.

Prior learning	Future learning
• Repeat actions that have an effect. (Birth to three)	• Describe what they see, hear and feel whilst outside. (Reception) • Identify how sounds are made, associating some of them with something vibrating. (Y4 – Sound) • Recognise that vibrations from sounds travel through a medium to the ear. (Y4 – Sound) • Find patterns between the pitch of a sound and features of the object that produced it. (Y4 – Sound) • Find patterns between the volume of a sound and the strength of the vibrations that produced it. (Y4 – Sound) • Recognise that sounds get fainter as the distance from the sound source increases. (Y4 – Sound)

CREATING APPROPRIATE EXPERIENCES TO INITIATE LEARNING

What adults might provide	What adults might do
Opportunities to listen to sounds • Listening to the sounds around them at different times and in different places • Playing listening games • Listening to recordings of different sounds and identifying what they are • Listening to visiting musicians • Making artwork based on the sounds that they hear	• Encourage children to describe the sounds they hear. • Encourage children to talk about how they make sounds using their bodies and musical instruments. • Encourage children to adapt the instruments they make, e.g. changing elastic bands on guitars, using different materials for drum skins etc., and talk about how the sound changes. • Encourage children to talk about how sounds and music make them feel.

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- Recording sounds they hear

Opportunities to make sounds

- Making sounds using their bodies
- Singing songs and rhymes
- Exploring toys and other objects that make a noise
- Hitting different objects with beaters of different materials to notice the different sounds they make
- Playing musical instruments
- Making and playing musical instruments e.g. shakers drums, guitars, kazoos and rainmakers etc.
- Recording the sounds they make

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- Encourage children to ask questions about sounds and how they are made.

Encouraging scientific enquiry

Comparative testing

- Compare the sound produced by shakers made with different materials.
- Compare the sound produced by different drums.
- Compare the sound produced by different elastic bands on their ‘guitar’.

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<td>Vocabulary</td>
<td>Common misconceptions</td>
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Model and encourage children to use vocabulary such as:

- sound, noise, loud, quiet, high, low, music, bang, blow, pluck, soft, hard, fast, slow, names of instruments

Expose children to supplementary vocabulary such as:

- musician, notes, vibrate, vibration, pitch, rhythm, pulse, volume

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Some children may think:

- for a sound to be heard the listener has to actively concentrate on it first
- sounds travel only to someone who is listening for them
- sounds cannot go through obstacles
- volume and pitch are the same thing
- not all sounds are caused by vibrations.

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Traditional stories and nursery rhymes

- The Wheels on the Bus
- Old MacDonald had a Farm

Other texts

- Peace at Last by Jill Murphy
- All Join In by Quentin Blake
- Pip and Posy: The Friendly Snail by Camilla Reid
- The Flute by Ken Wilson Max
- Mr Brown can moo, can you? by Dr Seuss
- Dinosaurs Roar by Henrietta Strickland
- Barnyard Banter by Denise Fleming
- Cats go … by Annie Horwood
- Sheep in a Jeep by Nancy Shaw
- Dogs go… by Annie Horwood

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Opportunities in the role-play corner to make and listen to sounds

- Musician
- Conductor
- Recording studio technician

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HOW CHILDREN MIGHT SHOW THEIR LEARNING	
Characteristics of effective teaching and learning	
• Playing and exploring – children investigate and experience things, and 'have a go' • Active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements • Creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things	
Demonstrating skills and showing understanding	
What a child might be doing	**Possible evidence of learning**
Children ask questions, make observations and talk about what they are doing and have found out while carrying out a range of activities, such as: • listening to sounds • making sounds. **Children record their observations when:** • listening to and making sounds • making artwork about the sounds they hear.	• Can make sounds using a range of objects. • Can recognise and describe the sounds made by different objects.

Planning for assessment

Reception

	Year	Reception	Topic	Animals, excluding humans
	Understanding the World			
	• Recognise some environments that are different to the one in which they live.			
	Links with other areas of learning			
	Physical Development • Revise and refine the fundamental movement skills they have already acquired: rolling; crawling; walking; jumping; running; hopping; skipping; climbing.			

Prior learning	Future learning
• Understand the key features of the life cycle of a plant and an animal. (Nursery) • Begin to understand the need to respect and care for the natural environment and all living things. (Nursery)	• Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 – Animals, including humans) • Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 – Animals, including humans) • Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Y1 – Animals, including humans)

CREATING APPROPRIATE EXPERIENCES TO INITIATE LEARNING	
What adults might provide	**What adults might do**
Opportunities to learn about animals from a different habitat • Sharing books about animals in the local area and animals in other countries e.g. jungle, polar regions, desert, ocean • Looking at pictures of animals in different habitats • Watching videos of animals in different habitats • Playing games involving matching animals to their habitats • Playing with small world animals in different habitats • Visiting the zoo, focusing on animals that live in different habitats • Caring for pets from a different habitat e.g. tropical fish • Creating pictures of animals in their habitats • Pretending to be animals • Naming and describing animals they see in books, pictures, videos or while on a trip • Describing different habitats	• Encourage children to name and describe animals that live in different habitats while reading books, watching videos, looking at pictures or playing matching games. • Encourage children to ask questions about different animals and the habitats they live in. • Encourage children to describe habitats. • Encourage children to talk about how animals are cared for when they live outside their natural habitat. • Encourage children to move like different animals. **Encouraging scientific enquiry** *Classification* • Sort animals according to where they live.

	Researching using secondary sources • Learn how animals from a different habitat are cared for. • Learn about animals in a different habitat.
Vocabulary	**Common misconceptions**
Model and encourage children to use vocabulary such as: • names of animals, live, on land, in water, jungle, desert, North Pole, South Pole, sea, hot, cold, wet, dry, snow, ice Expose children to supplementary vocabulary such as: • environment, polar regions, ocean, camouflage	Some children may think: • animals are furry and have four legs • a bee is not an animal because it is an insect • animals adapt to their surroundings, e.g. a brown bear turns white and becomes a polar bear • animals living in the soil breathe by coming to the surface • dragons and other mythical creatures are real animals.
Linked texts	**Linked careers**
Other texts • Lost and Found by Oliver Jeffers • Shark in the Park by Nick Sharratt • One Day on our Blue Planet: In the Antarctic by Ella Bailey • Poles Apart by Jeanne Willis • Monkey with a Bright Blue Bottom by Steve Smallman • Walking through the Jungle by Julie Lacome • How many legs? by Kes Gray • What do you do with a tail like this? by Steve Jenkins • The Rainbow Bear by Michael Morpurgo • We're Going on a Bear Hunt by Michael Rosen and Helen Oxenbury • Bears by Sally Morgan • Usborne Beginners Bears by Helen Helbrough	**Opportunities in the role-play corner to care for animals that live in different environments** • Zookeeper • Safari centre • Aquarium • Explorer/Naturalist

HOW CHILDREN MIGHT SHOW THEIR LEARNING	
Characteristics of effective teaching and learning	
• Playing and exploring – children investigate and experience things, and 'have a go' • Active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements • Creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things	
Demonstrating skills and showing understanding	
What a child might be doing	**Possible evidence of learning**
Children ask questions, make observations and talk about what they have found out about: • animals from a different habitat. **Children sort:** • animals.	• Can name and describe animals that live in different habitats. • Can describe different habitats.

Year	Reception	Topic	Humans

Understanding the World

- Talk about members of their immediate family and community.
- Name and describe people who are familiar to them.

Links with other areas of learning

Personal, Social and Emotional Development

- See themselves as a valuable individual.
- Manage their own needs.

Physical Development

- Know and talk about the different factors that support their overall health and wellbeing: regular physical activity; healthy eating; toothbrushing; sensible amounts of 'screen time'; having a good sleep routine; being a safe pedestrian.
- Further develop the skills they need to manage the school day successfully: lining up and queuing; mealtimes; personal hygiene.

Mathematics

- Compare length, weight and capacity.

Prior learning	Future learning
• Use all their senses in hands-on exploration of natural materials. (Nursery) • Begin to make sense of their own life-story and family's history. (Nursery) • Understand the key features of the life cycle of a plant and an animal. (Nursery) • Begin to understand the need to respect and care for the natural environment and all living things. (Nursery)	• Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 – Animals, including humans)

CREATING APPROPRIATE EXPERIENCES TO INITIATE LEARNING

What adults might provide	What adults might do
Opportunities to describe people who are familiar to them • Talking about themselves, friends, family and community using photographs • Using mirrors to look at their faces • Creating pictures or collages of themselves, friends, family and community • Making hand and footprints using paint • Making fingerprints using ink pads	• Encourage children to look at photographs of different people and to describe them. • Encourage children to describe their friends and family using photographs to help them. • Encourage children to talk about how their friends and family are the same and different. • Encourage children to compare themselves to characters in books.

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- Using a ‘magic’ mirror which shows everything about them and getting children to describe themselves and how they are special
- Sharing books about different types of families

Opportunities to learn about how to take care of themselves

- Demonstrating and talking about how they look after themselves
- Talking about other people that look after them
- Talking to a dentist, nurse, meal supervisor/school cook, road crossing supervisor etc.
- Sharing videos of people who care for us and how we look after ourselves

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- Encourage children to compare their hand, foot and fingerprints with their friends.
- Encourage children to talk about the people who look after them, both within their family and the wider community e.g. teachers, doctors, dentists etc.
- Encourage children to ask a dentist, nurse, meal supervisor/school cook, road crossing supervisor etc. questions.

Encouraging scientific enquiry

Classification

- Sort images of people according to their characteristics.

Researching using secondary sources

- *Find out information from visitors (dentist, nurse etc.).*

Pattern seeking

- *Are taller children faster?*
- *Are taller children stronger?*

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<th>Vocabulary</th>
<th>Common misconceptions</th>
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Model and encourage children to use vocabulary such as:

- hair (black, brown, dark, light, blonde, ginger, grey, white, long, short, straight, curly), eyes (blue, brown, green, grey), skin (black, brown, white), big/tall, small/short, bigger/smaller, baby, toddler, child, adult, old person, old, young, brother, sister, mother, father, aunt, uncle, grandmother, grandfather, cousin, friend, family, boy, girl, man, woman

Expose children to supplementary vocabulary such as:

- bald, elderly, wrinkles, male, female, freckles

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Some children may think:

- sons look like their fathers and daughters look like their mothers.

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<th>Linked texts</th>
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Other texts

- I Love My Hair by Natasha Anastasia Tarpley
- What I Like About Me by Alia Zobel-Nolan

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Opportunities in the role-play corner to show how people take care of them

- Doctor
- Nurse
- Dentist
- Optician

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HOW CHILDREN MIGHT SHOW THEIR LEARNING	
Characteristics of effective teaching and learning	
• Playing and exploring – children investigate and experience things, and 'have a go' • Active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements • Creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things	
Demonstrating skills and showing understanding	
What a child might be doing	**Possible evidence of learning**
Children ask questions, make observations using simple equipment and talk about what they are doing and have found out while carrying out a range of activities, such as: • describing people who are familiar to them • learning about how to take care of themselves. **Children sort:** • humans by their characteristics. **Children record their observations when:** • drawing themselves, their family, friends and community.	• Can describe themselves, family, friends and community. • Can create pictures of themselves, family, friends and community and identify their distinguishing features. • Can talk about what they see when using a mirror. • Can compare hand, foot and fingerprints and talk about how they are different. • Can talk about how they look after themselves and how other people look after them.

	Year	Reception	Topic	Living things and their habitats
	Understanding the World			
	• Draw information from a simple map. • Explore the natural world around them. • Describe what they see, hear and feel whilst outside. • Recognise some environments that are different to the one in which they live.			

Prior learning	Future learning
• Use all their senses in hands-on exploration of natural materials. • Explore collections of materials with similar and/or different properties. • Begin to understand the need to respect and care for the natural environment and all living things.	• Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Y1 – Plants) • Identify and describe the basic structure of a variety of common flowering plants, including trees. (Y1 – Plants) • Explore and compare the differences between things that are living, dead, and things that have never been alive. (Y2 – Living things in their habitat) • Identify and name a variety of plants and animals in their habitats, including microhabitats. (Y2 – Living things in their habitat)

CREATING APPROPRIATE EXPERIENCES TO INITIATE LEARNING	
What adults might provide	**What adults might do**
Opportunities to explore the plants in the surrounding natural environment • Taking photographs of the plants they find in the school grounds • Observing closely and drawing the plants in the school grounds • Finding plants in the school grounds to match with photographs of them • Looking at aerial views to count the number of trees in the school grounds • Using a map of the school grounds, with pictures of where specific plants can be found, to find those plants • Creating a map to show how to find their favourite plants in the school grounds **Opportunities to explore the animals in the surrounding natural environment** • Finding minibeasts in the school grounds • Taking photographs of the minibeasts they find in the school grounds	• Support children to identify different plants e.g. trees, bushes, flowers, vegetables, herbs. • Ensure children are careful when exploring the plants and do not damage them in any way. • Encourage children to touch and smell the plants, when appropriate. • Encourage children to talk about the plants they find. • Support children to name the plants they find. • Encourage children to find the same plant in a different place. • Ensure children are careful when observing minibeasts and return them to where they found them. • Encourage children to talk about the minibeasts they find. • Support children to name the minibeasts they find.

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- Matching the minibeasts they find to pictures that identify them
- Observing the minibeasts closely, using a magnifying glass or app on a tablet
- Drawing pictures of the minibeasts
- Creating a map to show where they found each type of minibeast
- Sharing books about minibeasts
- Playing with small world minibeasts
- Building minibeast homes

Opportunities to explore plants and animals in a contrasting natural environment

- Visiting a contrasting natural environment e.g. forest, beach, etc.
- Finding and taking photographs of plants and animals in the contrasting natural environment
- Sharing non-fiction and fiction books about the contrasting natural environment visited

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- Encourage children to identify similarities and differences between the plants and animals they find in the surrounding natural environment and the contrasting one they visit.
- Encourage children to ask questions about the plants and animals they find.

Encouraging scientific enquiry

Classification

- Name and describe plants and animals they find in the school grounds.

Pattern seeking

- Look for minibeasts in different areas of the school grounds.
- Look for plants in different areas of the school grounds.

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<td>Vocabulary</td>
<td>Common misconceptions</td>
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Model and encourage children to use vocabulary such as:

- plant, tree, bush, flower, vegetable, herb, weed, animal, names of plants and animals they see, name of a contrasting environment e.g. beach, forest

Expose children to supplementary vocabulary such as:

- environment

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Some children may think:

- trees are not plants
- trees are not living as they do not seem to change or grow
- weeds are bad plants.

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<td>Linked texts</td>
<td>Linked careers</td>
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Traditional stories and nursery rhymes

- Incey, Wincey Spider
- Ladybird, Ladybird Fly Away Home

Other texts

- Bad-Tempered Ladybird by Eric Carle
- Mad About Minibeasts by David Wojtowycz & Giles Andreae
- Ben Plants a Butterfly Garden by Kate Petty
- Norman the Slug with the Silly Shell by Sue Hendra
- Aargh a Spider by Lydia Monks
- Insects: A Close-up Look by Peter Seymour

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Opportunities in the role-play corner to explore and compare plants and animals in the surrounding natural environment and a contrasting one

- Botanist
- Naturalist
- Entomologist
- Ecologist
- Environmentalist
- Environmental scientist
- Beekeeper

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• Down at the Cool of the Pool by Tony Mitton • Over and Under the Pond by Kate Messner • Red Knit Cap Girl by Naoko Stoop	

HOW CHILDREN MIGHT SHOW THEIR LEARNING	
Characteristics of effective teaching and learning	
• Playing and exploring – children investigate and experience things, and 'have a go' • Active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements • Creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things	
Demonstrating skills and showing understanding	
What a child might be doing	**Possible evidence of learning**
Children ask questions, make observations using simple equipment and talk about what they are doing and have found out while carrying out a range of activities, such as: • exploring the plants in the surrounding natural environment • exploring the animals in the surrounding natural environment • exploring plants and animals in a contrasting natural environment. **Children record their observations when:** • drawing plants and animals they find.	• Can name and describe plants and animals in the school grounds and their environment. • Can talk about how another environment is different to their surrounding natural environment. • Children do not damage the living things they encounter in the natural environment.

	Year	Reception	Topic	Seasonal changes
	Understanding the World			
	• Explore the natural world around them. • Describe what they see, hear and feel whilst outside. • Understand the effect of changing seasons on the natural world around them.			

Prior learning	Future learning
• Understand the key features of the life cycle of a plant and an animal. (Nursery – Plants & Animals, excluding humans)	• Observe changes across the four seasons. (Y1 – Seasonal changes) • Observe and describe weather associated with the seasons and how day length varies. (Y1 – Seasonal changes)

CREATING APPROPRIATE EXPERIENCES TO INITIATE LEARNING	
What adults might provide	**What adults might do**
Opportunities to play and explore outside in all seasons and in different weather • Playing in the rain and snow • Drawing around puddles • Catching rain and hail in buckets • Catching snowflakes on frozen black paper and looking at them with magnifying glasses or an app on a tablet • Making icicles • Using scarves or pinwheels to explore the strength and direction of the wind • Looking at photographs of different seasons and types of weather • Sharing books about different seasons and types of weather **Opportunities to observe living things throughout the year** • Sharing books about the seasons • Going on seasonal walks to observe key features of the seasons • Making artwork with seasonal found objects • Visiting a canal or pond to look for birds and their young in spring • Visiting a farm to see the young animals in the spring	• Encourage children to talk about how they feel in different types of weather/seasons. • Encourage children to talk about the clothes they wear in different seasons and why. • Encourage children to talk about the weather throughout the year. • Encourage children to find shelter or make shelters to keep themselves dry in the rain or shade themselves when it is sunny. • Encourage children to talk about how the ground changes when it rains. • Encourage children to measure the size of puddles using their feet after it rains. • Encourage children to talk about how puddles change over time after it rains. • Encourage children to talk about the animals and plants that they find in different seasons. • Encourage children to ask questions about the weather and seasonal changes.

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- Finding minibeasts in the school grounds at different times in the year
- Taking photographs of the minibeasts they find in the school grounds at different times in the year
- Looking for birds and other animals throughout the year using binoculars
- Sharing books and videos about animals that migrate or hibernate over winter, gather food in autumn, build nests and lay eggs in spring etc.
- Taking photographs of the plants they find in the school grounds at different times in the year
- Observing closely and drawing the plants in the school grounds at different times in the year
- Matching animals and plants they find to pictures that identify them

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Encouraging scientific enquiry

Classification

- Which clothes are suitable for each season?

Observing over time

- How does a puddle change over time?
- How does a snowman change as it melts?
- How does the natural world change with the seasons?

Researching using secondary sources

- Find out about how animals behave in different seasons.
- Find out about the weather and seasons.

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Vocabulary

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Common misconceptions

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Model and encourage children to use vocabulary such as:

- spring, summer, autumn, winter, seasons, sunny, cloudy, hot, warm, cold, shower, raining, storm, thunder, lightning, hail, sleet, snow, icy, frost, puddles, windy, rainbow, animals, young, plants, flowers

Expose children to supplementary vocabulary such as:

- hibernate, migrate, snowflake

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Some children may think:

- it always snows in winter
- it is always hot in the summer
- all babies and young animals are born in spring
- plants only have flowers in the spring and summer
- animals sleep during winter
- it rains to help the plants grow
- when it is hotter, it is because the Sun is closer
- God controls the weather.

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Linked texts

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Linked careers

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Traditional stories and nursery rhymes

- Rain, Rain Go Away
- Rain on the Green Grass
- It's Raining, It's Pouring
- I Hear Thunder

Other texts

- Seasons by Anna Pang
- Autumn is Here by Heidi Pross Gray
- Spring is Here by Will Hillenbrand
- One Springy Day by Nick Butterworth
- WOW! It's Night-time by Tim Hopgood
- Tree - Seasons Come, Seasons Go by Britta Teckentup

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Opportunities in the role-play corner to talk about the weather throughout the year

- Meteorologist
- Weather presenter

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• The Snowy Day by Ezra Jack Keats • The Snowman by Raymond Briggs	

HOW CHILDREN MIGHT SHOW THEIR LEARNING	
Characteristics of effective teaching and learning	
• Playing and exploring – children investigate and experience things, and 'have a go' • Active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements • Creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things	
Demonstrating skills and showing understanding	
What a child might be doing	**Possible evidence of learning**
Children ask questions, make observations using simple equipment and talk about what they are doing and have found out while carrying out a range of activities, such as: • playing and exploring outside in all seasons and in different weather • observing living things throughout the year. **Children use equipment to measure when:** • exploring the size of puddles. **Children sort:** • clothes for different seasons. **Children record their observations when:** • observing plants, animals and puddles.	• Can talk about different types of weather. • Can talk about the four seasons. • Can talk about the living things they see in the playground and on visits during each season.

	Year	Reception	Topic	Materials, including changing materials
	Understanding the World			
	• Explore the natural world around them. • Describe what they see, hear and feel whilst outside.			

Prior learning	Future learning
• Use all their senses in hands-on exploration of natural materials. (Nursery) • Explore collections of materials with similar and/or different properties. (Nursery) • Talk about the differences between materials and changes they notice. (Nursery)	• Distinguish between an object and the material from which it is made. (Y1 – Everyday materials) • Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 – Everyday materials) • Describe the simple physical properties of a variety of everyday materials. (Y1 – Everyday materials) • Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 – Everyday materials)

CREATING APPROPRIATE EXPERIENCES TO INITIATE LEARNING	
What adults might provide	**What adults might do**
Opportunities to explore a range of materials in a sensory way, including natural materials • Looking for dew, ice, icicles and frost in the playground • Using their senses to explore natural materials in the environment, such as stones, twigs, leaves, feathers, seeds, flowers etc. • Gathering natural materials to make collections **Opportunities to make objects from different materials, including natural materials** • Making pictures using natural materials they have gathered from the environment • Making dens, nests, bug hotels etc. using natural materials • Making ice pictures by putting water in a shallow tray and adding natural objects gathered from the environment and then leaving them outside to freeze or putting them in the freezer	• Encourage children to talk about the natural materials they explore, using their senses. • Encourage children to talk about the materials they are using when making pictures. • Encourage children to choose from a range of materials, including natural materials, when making models and identify a key property that was required. • Encourage children to reuse materials and talk about what can be recycled to care for the natural world. • Support children to list the properties the material has. • Encourage children to test that their model is fit for purpose and that the materials are suitable. • Encourage children to compare and describe how materials change over time and in different conditions.

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- Making junk models with a range of materials, including natural materials they have gathered from the environment

Opportunities to compare how materials change

- Making popcorn in a microwave and on a fire
- Making pizza dough with different flours
- Baking bread in different tins or for different times to compare the outcome
- Baking cupcakes and removing one after every five minutes
- Choosing where to put ice cubes in the playground and observing how quickly they melt
- Observing how a large block of ice changes over time, using string to measure around it
- Putting wax crayons in different areas of the playground and observing how they change
- Making a snowman and observing how it changes over time
- Making snowballs and putting them in different parts of the playground and observing how they change over time

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- Encourage children to take photographs or draw pictures to record how materials change.
- Encourage children to measure how objects change when they melt.
- Encourage children to ask questions about materials and how they change.

Encouraging scientific enquiry

Comparative testing

- How does popcorn made in a microwave compare to popcorn made on a fire?
- How quickly do ice cubes melt in different areas of the playground?
- How are pizza bases different when made with different flours?
- How does a loaf cook differently in different tins?
- How do cupcakes cook if they have different amounts of mixture?

Observing over time

- How does the block of ice change over time?
- How does a snowman change over time?
- How does cake mixture/bread dough change as it is cooked?

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<td>Vocabulary</td>
<td>Common misconceptions</td>
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Model and encourage children to use vocabulary such as:

- ice, water, frozen, icicle, snow, melt, wet, cold, slippery, smooth, big, bigger, biggest, smaller, smaller, smallest, hard, soft, bendy, rigid, wood, plastic, paper, card, metal, strong, weak, hot, apply heat, waterproof, soggy, not waterproof, best, change, change back

Expose children to supplementary vocabulary such as:

- solid, liquid, gas, most suited

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Some children may think:

- material only means fabric
- all plastic/wood etc. is the same.

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<td>Linked texts</td>
<td>Linked careers</td>
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Opportunities in the role-play corner to compare materials and explore how they change

- Recycling centre worker
- Product designer
- Builder
- Chef

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HOW CHILDREN MIGHT SHOW THEIR LEARNING	
Characteristics of effective teaching and learning	
• Playing and exploring – children investigate and experience things, and 'have a go' • Active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements • Creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things	
Demonstrating skills and showing understanding	
What a child might be doing	**Possible evidence of learning**
Children ask questions, make observations using simple equipment and talk about what they are doing and have found out while carrying out a range of activities, such as: • exploring a range of materials in a sensory way, including natural materials • making objects from different materials, including natural materials • comparing how materials change. **Children use equipment to measure when:** • observing how objects melt. **Children sort:** • materials, including natural materials. **Children record their observations when:** • materials are changing over time or in different conditions.	• Can name the material they are using and why. • Can talk about multiple properties of the material and why it is suited for its purpose. • Can observe changes in their natural world and say why it is different now or will change in the future. • Can compare and describe how materials change over time and in different conditions.

	Year	Reception	Topic	Light
	Understanding the World			
	• Describe what they see, hear and feel whilst outside.			
	Links with other areas of learning			
	Personal, Social and Emotional Development • Manage their own needs.			

Prior learning	Future learning
• Explore how things work. (Nursery) • Talk about the differences in materials and changes they notice. (Nursery)	• Recognise that they need light in order to see things and that dark is the absence of light. (Y3 – Light) • Notice that light is reflected from surfaces. (Y3 – Light) • Recognise that light from the Sun can be dangerous and that there are ways to protect their eyes. (Y3 – Light) • Recognise that shadows are formed when the light from a light source is blocked by an opaque object. (Y3 – Light) • Find patterns in the way that the size of shadows change. (Y3 – Light)

CREATING APPROPRIATE EXPERIENCES TO INITIATE LEARNING	
What adults might provide	**What adults might do**
Opportunities to explore shadows • Looking for shadows created by the Sun on cloudy and non-cloudy days • Drawing around shadows and comparing their shape and size • Making shadows using their bodies, both outside using the Sun and inside using torches • Making shadows using transparent and opaque objects/materials • Putting hands in a beam of light and making shadow shapes • Making shadows using shadow puppets or other objects • Observing a toy outside and noticing how the shadow changes during the day • Observing what areas are sunny and shady at different times in the day • Sharing books about shadows	• Encourage children to talk about the shadows that they see inside and outdoors. • Support children to identify the light source and the object that is making the shadow. • Support children to identify that see-through objects make pale shadows and non-see-through objects make dark shadows. • Support children to measure shadows using their feet or other non-standard units. • Encourage children to draw around shadows throughout the day to record how they change over time. • Encourage children to talk about changes they feel when the clouds cover and uncover the Sun. • Encourage children to talk about the changes to the shadows when the clouds cover and uncover the Sun.

<table>
<tr><td>Opportunities to explore rainbows
• Making rainbows from sunlight e.g. bubbles, water sprinkler, holographic paper, CDs etc.
• Sharing books about rainbows</td><td>• Support children to choose appropriate clothing when they are hot or out in the Sun.
• Encourage children to ask questions about the shadows and rainbows that they see.

Encouraging scientific enquiry

Comparative testing
• Compare the shape of shadows made by different objects.
Classification
• Which objects/materials make dark shadows?
Observing over time
• How do the Sun and shade change during the day?
• How does a toy’s shadow change during the day?
Researching using secondary sources
• Find out about shadows.
• Find out about rainbows.</td></tr>
<tr><td>Vocabulary</td><td>Common misconceptions</td></tr>
<tr><td>Model and encourage children to use vocabulary such as:
• Sun, sunny, light, shadow, shady, clouds, torch, see-through, non-see-through, source, light source
Expose children to supplementary vocabulary such as:
• casting a shadow, pale, dark, transparent, opaque</td><td>Some children may think:
• shadows are only caused by the Sun
• all shadows are black.</td></tr>
<tr><td>Linked texts</td><td>Linked careers</td></tr>
<tr><td>Other texts
• Suddenly by Colin McNaughton
• Where is the Dragon? By Leo Timmers</td><td>Opportunities in the role-play corner to use shadows
• Puppeteer</td></tr>
</table>

HOW CHILDREN MIGHT SHOW THEIR LEARNING	
Characteristics of effective teaching and learning	
• Playing and exploring – children investigate and experience things, and 'have a go' • Active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements • Creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things	
Demonstrating skills and showing understanding	
What a child might be doing	**Possible evidence of learning**
Children ask questions, make observations and talk about what they are doing and have found out while carrying out a range of activities, such as: • exploring shadows • exploring rainbows. **Children use equipment to measure when:** • comparing the size of shadows. **Children sort:** • objects/materials that make dark or pale shadows. **Children record their observations when:** • shadows change throughout the day.	• Can point out shadows in the playground. • Can explain when shadows can be seen in the playground. • Can talk about how shadows changes during the day. • Can identify the light source and the object making a shadow. • Can identify shadows that are dark and pale. • Can identify and describe a rainbow.

Year	Reception	Topic	Forces

Understanding the World

- Explore the natural world around them.
- Describe what they see, hear and feel whilst outside.

Prior learning	Future learning
• Explore how things work. (Nursery) • Explore and talk about different forces they can feel. (Nursery) • Talk about the differences between materials and changes they notice. (Nursery)	• Compare how things move on different surfaces. (Y3 – Forces and magnets) • Observe how magnets attract or repel each other and attract some materials and not others. (Y3 – Forces and magnets) • 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. (Y3 – Forces and magnets) • Describe magnets as having two poles. (Y3 – Forces and magnets) • Predict whether two magnets will attract or repel each other, depending on which poles are facing. (Y3 – Forces and magnets) • Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. (Y5 – Forces) • Identify the effects of air resistance, water resistance and friction, that act between moving surfaces. (Y5 – Forces)

CREATING APPROPRIATE EXPERIENCES TO INITIATE LEARNING

What adults might provide	What adults might do
Opportunities to explore how to change how things work • Adapting objects to see if they can be made to float or sink e.g. cutting and peeling fruit and vegetables, reshaping plasticene etc. • Testing how many small objects different foil containers can hold before sinking • Testing how toy cars move down ramps and gutters • Testing how wheels turn when sand or water is poured through them • Testing how objects fall with and without a parachute attached	• Encourage children to talk about how they changed objects to make them float or sink. • Encourage children to count and record how small objects different 'boats' can hold before they sink. • Encourage children to talk about how they changed how the cars rolled down ramps/gutters. • Encourage children to talk about what happened when they poured sand/water through wheels and down gutters and how they changed this.

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- Testing how different balls bounce
- Making and testing paper aeroplanes
- Designing different marble runs or routes for water/sand to travel down gutters or pipes

Opportunities to explore how objects move in air

- Identifying objects being blown around outdoors
- Observing how different objects fall e.g. scarves, feathers
- Observing how toys/objects move in the wind e.g. streamers, balloons, pinwheels, bubbles etc.
- Comparing the movements of a ball and a balloon when bouncing or throwing and catching

Opportunities to explore how objects move in water

- Exploring how a marble moves through different liquids in sealed bottles
- Observing how sailing boats move through water

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- Encourage children to compare how objects fall, including with or without parachutes.
- Encourage children to explore and talk about how they changed how different balls bounced.
- Encourage children to make different aeroplanes and compare how far they fly by marking where they land.
- Encourage children to describe how sand or water moves down pipes or gutters, or marbles travel down a marble run, and how they changed this.
- Encourage children to notice and talk about the objects in the playground that are moved by the wind.
- Encourage children to explore and talk about what they observe when turning bottles filled with different liquids and a marble upside down.
- Encourage children to ask questions about forces, such as “What happens if I …”

Encouraging scientific enquiry

Comparative testing

- How many cubes/small plastic animals can fit in different ‘boats’?
- Compare how cars move down ramps/gutters.
- Compare how wheels turn when sand or water is poured through.
- Compare how objects fall.
- Compare how objects fall with and without parachutes.
- Compare how different balls bounce.
- Compare how things move when blown.
- Compare how a marble moves through different liquids.
- Compare how different paper aeroplanes fly.

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<th>Vocabulary</th>
<th>Common misconceptions</th>
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Model and encourage children to use vocabulary such as:

- float, sink, up, down, top, bottom, surface, move, roll, drop, fly, turn, spin, fall, fast, slow, faster, slower, fastest, slowest, further, furthest, wind, air, water, blow, bounce

Expose children to supplementary vocabulary such as:

- force, rotate, solid, liquid, gravity

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Some children may think:

- all light objects float and all heavy objects sink
- objects made of the same material will always float or sink.

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Linked texts	Linked careers
Traditional stories and nursery rhymes • Billy Goats Gruff • Gingerbread Man *(making boats to cross the river)* *Other texts* • Mr Gumpy's Outing by John Burningham • Mr Archimedes' Bath by Pamela Allen • Who sank the boat? by Pamela Allen • Stickman by Julia Donaldson • Flotsam by David Wiesner • Blown Away by Rob Biddulph	**Opportunities in the role-play corner to explore how to change how things work** • Boat builder • Aircraft engineer • Rocket designer • Engineer

HOW CHILDREN MIGHT SHOW THEIR LEARNING	
Characteristics of effective teaching and learning	
• Playing and exploring – children investigate and experience things, and 'have a go' • Active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements • Creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things	
Demonstrating skills and showing understanding	
What a child might be doing	**Possible evidence of learning**
Children ask questions, make observations and talk about what they are doing and have found out while carrying out a range of activities, such as: • exploring how to change how things work • exploring how the wind can move objects • exploring how objects move in water. **Children use equipment to measure when:** • pouring water and sand. **Children record their observations when:** • testing boats and aeroplanes.	• Can talk about how they changed objects to make them float or sink. • Can talk about how they changed how cars move down ramps or gutters. • Can talk about how they changed how wheels turn when sand or water is poured through them. • Can talk about how they changed how balls bounce. • Can compare how different boats and aeroplanes performed. • Can describe how objects fall with and without a parachute. • Can describe how a marble moves through different liquids.

	Year	Reception	Topic	Sound
	Understanding the World			
	• Describe what they see, hear and feel whilst outside.			

Prior learning	Future learning
• Explore how things work. (Nursery)	• Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 – Animals, including humans) • Identify how sounds are made, associating some of them with something vibrating. (Y4 – Sound) • Recognise that vibrations from sounds travel through a medium to the ear. (Y4 – Sound) • Find patterns between the pitch of a sound and features of the object that produced it. (Y4 – Sound) • Find patterns between the volume of a sound and the strength of the vibrations that produced it. (Y4 – Sound) • Recognise that sounds get fainter as the distance from the sound source increases. (Y4 – Sound)

CREATING APPROPRIATE EXPERIENCES TO INITIATE LEARNING	
What adults might provide	**What adults might do**
Opportunities to listen to sounds outside and identify the source • Going on a sound walk • Closing eyes and listening to the sounds around them when outside • Listening to rain, wind, thunder • Recording sounds when outside • Playing sound identification games • Catching rain in metal buckets or saucepans **Opportunities to make sounds**	• Encourage children to describe the sounds they hear. • Support children to identify what is making each sound. • Encourage children to ask questions about the sounds they hear and what is making them. **Encouraging scientific enquiry** *Comparative testing* • How does rain sound different when it lands in different containers?

• Making noise by blowing on a blade of grass • Making wind chimes • Using voices, instruments and other objects to mimic sounds they hear outdoors	*Observing over time* • Listen to the siren of an emergency vehicle as it approaches and moves away.
Vocabulary	**Common misconceptions**
Model and encourage children to use vocabulary such as: • sound, noise, listen, hear, music, voices, bird song, traffic, sirens, thunder, high, low, loud, quiet, soft, volume, crackle, thunder, hum, buzz, roar Expose children to supplementary vocabulary such as: • source, crescendo, vibration, pitch	Some children may think: • sounds do not travel through solids and liquids.
Linked texts	**Linked careers**
Traditional stories and nursery rhymes • One Coconut, Two Coconuts • Pass the Secret Round *Other texts* • Splish, Splash, Splosh by Mick Manning • Alfie's Weather by Shirley Hughes • Polar Bear, Polar Bear, What Do You Hear? by Eric Carle • The Very Quiet Cricket by Eric Carle • The Very Clumsy Click Beetle by Eric Carle	**Opportunities in the role-play corner to listen to sounds** • Sound effect artist

HOW CHILDREN MIGHT SHOW THEIR LEARNING	
Characteristics of effective teaching and learning	
• Playing and exploring – children investigate and experience things, and 'have a go' • Active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements • Creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things	
Demonstrating skills and showing understanding	
What a child might be doing	**Possible evidence of learning**
Children ask questions, make observations and talk about what they are doing and have found out while carrying out a range of activities, such as: • listening to sounds outside and identifying the source making the sounds. **Children record their observations when:** • listening to sounds.	• Can describe sounds they hear. • Can identify the source of sounds. • Can describe how they make sounds.

	Year	Reception	Topic	Earth and space
	Understanding the World			
	• Explore the natural world around them. • Describe what they see, hear and feel whilst outside.			

Prior learning	Future learning
• Explore and respond to different natural phenomena in their setting and on trips. (Birth to three)	• Describe the movement of the Earth, and other planets, relative to the Sun in the solar system. (Y5 – Earth and space) • Describe the movement of the Moon relative to the Earth. (Y5 – Earth and space) • Describe the Sun, Earth and Moon as approximately spherical bodies. (Y5 – Earth and space) • Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky. (Y5 – Earth and space)

CREATING APPROPRIATE EXPERIENCES TO INITIATE LEARNING	
What adults might provide	**What adults might do**
Opportunities to learn about the Earth, Sun, Moon, planets and stars • Observing that the Sun appears to move across the sky • Observing that it is warmer and brighter when the Sun is shining than when it is behind the clouds • Observing that they can see the Moon at night and sometimes in the day • Observing that they can only see the stars at night • Making model planets e.g. with papier-mâché or Modroc and balloons • Modelling a cratered moon landscape with papier-mâché or Modroc • Observing distant objects, including the Moon, with binoculars or a small telescope • Sharing books and video clips about the Earth, Sun, Moon, planets and stars • Talking about what happens and what they can see and hear in the daytime and at night	• Encourage children to safely observe changes in the sky at different times of the day. • Support children to link changes in the sky to other observations e.g. changes in temperature and brightness. • Encourage children to observe the evening/night sky with their family. • Model asking questions about space and space travel. • Encourage children to ask questions about space and space travel. • Encourage children to move as if they were in space or on the Moon. • Encourage children to use observations from books and video clips when painting their model planets. • Encourage children to talk about how binoculars or a telescope make distant objects appear larger and closer. • Encourage children to sort animals by when they are active. • Support children to decide criteria for the 'best' rocket.

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- Sorting small world animals into those that are active in the daytime and those that are active at night

Opportunities to learn about space travel

- Joining materials to make model rockets, Moon buggies/Mars rovers and space stations
- Making and testing simple air-propelled card or plastic bottle rockets
- Sharing books and video clips about space exploration including video clips of astronauts walking on the Moon and floating in the space station

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- Support children to describe the movements of astronauts.

Encouraging scientific enquiry

Comparative testing

- Make and testing air-propelled rockets to find out which is the ‘best’.

Pattern seeking

- Find simple patterns in how light levels and temperature change with the movement, or obscuring of, the Sun.

Research using secondary sources

- Find out about the Solar System, stars and space travel.
- Find out about nocturnal animals.

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<tr><th>Vocabulary</th><th>Common misconceptions</th></tr>
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Model and encourage children to use vocabulary such as:

- Sun, Moon, Earth, star, planet, sky, day, night, space, round, bounce, float

Expose children to supplementary vocabulary such as:

- sunrise, sunset, astronaut, astronomer, constellation, orbit, nocturnal, slow-motion, magnify

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Some children may think:

- the Earth is flat
- the Moon and Sun are discs
- stars are a pointed ‘star’ shape
- the Moon appears only at night
- at night, the Sun is turned off
- at night, the Sun goes behind the clouds.

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<tr><th>Linked texts</th><th>Linked careers</th></tr>
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Traditional stories, songs and nursery rhymes

- Twinkle, Twinkle Little Star

Other texts

- Whatever Next! by Jill Murphy
- Astro Girl by Ken Wilson-Max
- Look Up! by Nathan Bryon
- How to Catch a Star by Oliver Jeffers
- Owl Babies by Martin Waddell

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Opportunities in the role-play corner to learn about space

- Astronomer
- Astronaut on a space station or rocket
- Rocket designer

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</table>

HOW CHILDREN MIGHT SHOW THEIR LEARNING	
Characteristics of effective teaching and learning	
• Playing and exploring – children investigate and experience things, and 'have a go' • Active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements • Creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things	
Demonstrating skills and showing understanding	
What a child might be doing	**Possible evidence of learning**
Children ask questions, make observations and talk about what they are doing and have found out while carrying out a range of activities, such as: • learning about the Earth, Sun, Moon, planets and stars • learning about space travel. **Children record their observations when:** • making models of Earth, Sun, Moon, planets and stars • drawing things that happen in the daytime and at night.	• Can identify the Sun, Moon and stars and talk about how they are different from Earth. • Can identify differences between day and night. • Can talk about animals that are active at night. • Can talk about some differences between being on Earth and travelling in space.