

Planning for assessment

Reception

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	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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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>
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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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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	
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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 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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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.

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<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>
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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 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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<td>Vocabulary</td>
<td>Common misconceptions</td>
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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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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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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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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.