South Gosforth First School – Science

Long Term Planning – Reception

Term:	**Continuous Provision**	
Science Curriculum Area	Animals Excluding Humans	
Science Topic		
Development Matters	**Understanding the world** • Recognise some environments that are different to the one in which they live. **Physical Development** • Revise and refine the fundamental movement skills they have already acquired: rolling; crawling; walking; jumping; running; hopping; skipping; climbing.	
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	• 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.

	• Describing different habitats	
Encouraging Scientific Enquiry	**Observing Over Time:** N/A **Pattern Seeking**: N/A **Research:** • Learn how animals from a different habitat are cared for. • Learn about animals in a different habitat. **Identifying & Classifying:** N/A **Comparative Test:** Sort animals according to where they live.	
Prior Learning & Understanding – 'Why here, why now?'	The Animal Excluding Humans topic will build upon what the children learned in 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) This topic is a stepping stone to: • 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)	
Common Misconceptions	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.	
Enhancements	• Visit to Hall Hill Farm. • Visit to the Nature Garden. • Visit to the school pond. • Caterpillars in classroom. • Turtle Watch • Dinosaur Island	
Key Vocabulary	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	
Links	**Linked Texts**	**Linked Careers**

<table>
<tr><td></td><td>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</td><td colspan="2">Opportunities in the role-play corner to care for animals that live in different environments.
• Zookeeper
• Safari centre
• Aquarium
• Explorer / Naturalist</td></tr>
<tr><td rowspan="2"><u>How children might show their learning</u></td><td colspan="3"><u>Characteristics of effective teaching and learning:</u></td></tr>
<tr><td colspan="3">• 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</td></tr>
<tr><td rowspan="2"><u>Demonstrating skills and showing understanding</u></td><td>What a child might be doing</td><td colspan="2">Possible evidence of learning</td></tr>
<tr><td>Children ask questions, make observations and talk about what they have found out about:
• Animals from a different habitat.

Children sort:
• Animals</td><td colspan="2">• Can name and describe animals that live in different habitats.
• Can describe different habitats.</td></tr>
</table>

South Gosforth First School – Science

Long Term Planning – Reception

Term:	**Continuous Provision**	
Science Curriculum Area	Humans	
Science Topic – Enquiry Question Title		
Development Matters	**Understanding the world** • Talk about members of their immediate family and community. • Name and describe people who are familiar to them. **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.	
Creating appropriate	**What adults might provide**	**What adults might do**

experiences to initiate learning	**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.
Encouraging Scientific Enquiry	**Observing Over Time:** N/A **Pattern Seeking**: • Are taller children faster? • Are taller children stronger? **Research:** • Find out information from visitors (dentist, nurse etc.) **Identifying & Classifying:** Sort images of people according to their characteristics. **Comparative Test:** N/A	
Prior Learning & Understanding – 'Why here, why now?'	The Human topic will build upon what the children learned in Nursery. • 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) This topic is a stepping stone to: • 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)	
Common Misconceptions	Some children may think: • sons look like their fathers and daughters look like their mothers.	
Enhancements	• Family play and stay sessions.	
Key Vocabulary	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	

<table>
<tr><td></td><td colspan="2">Expose children to supplementary vocabulary such as:

• bald, elderly, wrinkles, male, female, freckles</td></tr>
<tr><td rowspan="2"><u>Links</u></td><td>Linked Texts</td><td>Linked Careers</td></tr>
<tr><td>Other texts

• I Love My Hair by Natasha Anastasia Tarpley
• What I Like About Me by Alia Zobel-Nolan</td><td>Opportunities in the role-play corner to show how people take care of them

• Doctor • Nurse
• Dentist • Optician</td></tr>
<tr><td><u>How children might show their learning</u></td><td colspan="2"><u>Characteristics of effective teaching and learning:</u>

• 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.</td></tr>
<tr><td rowspan="2"><u>Demonstrating skills and showing understanding</u></td><td>What a child might be doing</td><td>Possible evidence of learning</td></tr>
<tr><td>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.</td><td>• 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.</td></tr>
</table>

Long Term Planning – Reception

<table>
<tr><td>Term:</td><td colspan="2">Continuous Provision</td></tr>
<tr><td>Science Curriculum Area</td><td colspan="2">Living things and their habitats</td></tr>
<tr><td>Science Topic – Enquiry Question Title</td><td colspan="2">  </td></tr>
<tr><td>Development Matters</td><td colspan="2">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.</td></tr>
<tr><td rowspan="2">Creating appropriate experiences to initiate learning</td><td>What adults might provide</td><td>What adults might do</td></tr>
<tr><td>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</td><td>• 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.</td></tr>
</table>

<table>
<tr><td><u>Encouraging Scientific Enquiry</u></td><td colspan="2"><u>Observing Over Time:</u> N/A
<u>Pattern Seeking</u>:
• Look for minibeasts in different areas of the school grounds.
• Look for plants in different areas of the school grounds.
<u>Research:</u> N/A
<u>Identifying & Classifying:</u> Name and describe plants and animals they find in the school grounds
<u>Comparative Test:</u> N/A</td></tr>
<tr><td><u>Prior Learning & Understanding – ‘Why here, why now?’</u></td><td colspan="2">Living things and their habitat topic will build upon what the children learned in Nursery.
• 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.

This topic is a stepping stone to:
• 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)</td></tr>
<tr><td><u>Common Misconceptions</u></td><td colspan="2">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.</td></tr>
<tr><td><u>Enhancements</u></td><td colspan="2">• Visit to Hall Hill Farm.
• Visit to the Nature Garden.
• Visit to the school pond.
• Caterpillars in classroom.</td></tr>
<tr><td><u>Key Vocabulary</u></td><td colspan="2">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</td></tr>
<tr><td><u>Links</u></td><td>Linked Texts</td><td>Linked Careers</td></tr>
</table>

	Other texts *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	**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
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** **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.	**Possible evidence of learning** • 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.

<table>
<tr><td><u>Term:</u></td><td colspan="2"><u>Continuous Provision</u></td></tr>
<tr><td><u>Science Curriculum Area</u></td><td colspan="2">Seasonal Changes</td></tr>
<tr><td><u>Science Topic – Enquiry Question Title</u></td><td colspan="2">  </td></tr>
<tr><td><u>Development Matters</u></td><td colspan="2">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.</td></tr>
<tr><td rowspan="2"><u>Creating appropriate experiences to initiate learning</u></td><td>What adults might provide</td><td>What adults might do</td></tr>
<tr><td>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</td><td>• 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.</td></tr>
</table>

Encouraging Scientific Enquiry	**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? **Pattern Seeking**: N/A **Research:** • Find out about how animals behave in different seasons. • Find out about the weather and seasons. **Identifying & Classifying:** Which clothes are suitable for each season? **Comparative Test:** N/A
Prior Learning & Understanding – 'Why here, why now?'	The Seasonal Changes topic will build upon what the children learned in Nursery. • Understand the key features of the life cycle of a plant and an animal. (Nursery – Plants & Animals, excluding humans) This topic is a stepping stone to: • 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)
Common Misconceptions	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.
Enhancements	• Visit the nature garden • Visit to the beach.
Key Vocabulary	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

<table>
<tr><td rowspan="2"><u>Links</u></td><td>Linked Texts</td><td>Linked Careers</td></tr>
<tr><td>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
• The Snowy Day by Ezra Jack Keats
• The Snowman by Raymond Briggs</td><td>Opportunities in the role-play corner to talk about the weather throughout the year

• Meteorologist
• Weather presenter</td></tr>
<tr><td><u>How children might show their learning</u></td><td colspan="2"><u>Characteristics of effective teaching and learning:</u>

• 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</td></tr>
<tr><td rowspan="2"><u>Demonstrating skills and showing understanding</u></td><td>What a child might be doing</td><td>Possible evidence of learning</td></tr>
<tr><td>• 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</td><td>• 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.</td></tr>
</table>

South Gosforth First School – Science

Long Term Planning – Reception

Term:	**Continuous Provision**	
Science Curriculum Area	Materials including changing materials	
Science Topic – Enquiry Question Title		
Development Matters	**Understanding the world** • Explore the natural world around them. • Describe what they see, hear and feel whilst outside.	
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	• 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. • Encourage children to take photographs or draw pictures to record how materials change.

	objects gathered from the environment and then leaving them outside to freeze or putting them in the freezer • 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	• Encourage children to measure how objects change when they melt. • Encourage children to ask questions about materials and how they change.
Encouraging Scientific Enquiry	**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? **Pattern Seeking**: N/A **Research:** N/A **Identifying & Classifying:** • 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? **Comparative Test:** N/A	

<table>
<tr><td><u>Prior Learning & Understanding – 'Why here, why now?'</u></td><td colspan="2">The Materials and changing materials topic will build upon what the children learned in Nursery.
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)
This topic is a stepping stone to:
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)</td></tr>
<tr><td><u>Common Misconceptions</u></td><td colspan="2">Some children may think:
material only means fabric
all plastic/wood etc. is the same.</td></tr>
<tr><td><u>Enhancements</u></td><td colspan="2">Visit to the nature garden
Christmas Science Day</td></tr>
<tr><td><u>Key Vocabulary</u></td><td colspan="2">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</td></tr>
<tr><td rowspan="2"><u>Links</u></td><td>Linked Texts</td><td>Linked Careers</td></tr>
<tr><td></td><td>Opportunities in the role-play corner to compare materials and explore how they change
Recycling centre worker
Product designer • Builder
Chef</td></tr>
<tr><td></td><td colspan="2"><u>Characteristics of effective teaching and learning:</u></td></tr>
</table>

<table>
<tr><td><u>How children might show their learning</u></td><td colspan="2">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</td></tr>
<tr><td rowspan="2"><u>Demonstrating skills and showing understanding</u></td><td>What a child might be doing</td><td>Possible evidence of learning</td></tr>
<tr><td>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.</td><td>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.</td></tr>
</table>

South Gosforth First School – Science

Long Term Planning – Reception

Term:	**Continuous Provision**	
Science Curriculum Area	Light	
Science Topic – Enquiry Question Title		
Development Matters	**Understanding the world** • Describe what they see, hear and feel whilst outside. **Personal, Social and Emotional Development** • Manage their own needs.	
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.

	Opportunities to explore rainbows • Making rainbows from sunlight e.g. bubbles, water sprinkler, holographic paper, CDs etc. • Sharing books about rainbows	• 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	**Observing Over Time:** • How do the Sun and shade change during the day? • How does a toy's shadow change during the day? **Pattern Seeking**: N/A **Research:** • Find out about shadows. • Find out about rainbows. **Identifying & Classifying:** • Compare the shape of shadows made by different objects. **Comparative Test:** N/A	
Prior Learning & Understanding – 'Why here, why now?'	The Light topic will build upon what the children learned in Nursery. • Explore how things work. (Nursery) • Talk about the differences in materials and changes they notice. (Nursery) This topic is a stepping stone to: • 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)	
Common Misconceptions	Some children may think: • material only means fabric • all plastic/wood etc. is the same.	
Enhancements	• Visit to the nature garden	
Key Vocabulary	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:	

<table>
<tr><td></td><td colspan="2">

- casting a shadow, pale, dark, transparent, opaque

</td></tr>
<tr><td rowspan="2"><u>Links</u></td><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>
<tr><td rowspan="2"><u>How children might show their learning</u></td><td colspan="2"><u>Characteristics of effective teaching and learning:</u></td></tr>
<tr><td colspan="2">

- 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

</td></tr>
<tr><td rowspan="2"><u>Demonstrating skills and showing understanding</u></td><td>What a child might be doing</td><td>Possible evidence of learning</td></tr>
<tr><td>

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.

</td><td>

- 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.

</td></tr>
</table>

South Gosforth First School – Science

Long Term Planning – Reception

Term:	**Continuous Provision**	
Science Curriculum Area	Forces	
Science Topic – Enquiry Question Title		
Development Matters	**Understanding the world** • Explore the natural world around them. • Describe what they see, hear and feel whilst outside.	
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 plasticine 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 • 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	• 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. • Encourage children to compare how objects fall 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.

	Opportunities to explore how the wind can move objects • Identifying objects being blown around outdoors • Observing how toys/objects move in the wind e.g. streamers, balloons, pinwheels, bubbles etc. **Opportunities to explore how objects move in water** • Explore how a marble moves through different liquids in sealed bottles • Observing how sailing boats move through water	• 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 ….?
Encouraging Scientific Enquiry	**Observing Over Time:** N/A **Pattern Seeking**: N/A **Research:** N/A **Identifying & Classifying:** N/A **Comparative Test:** • How many cubes/small plastic animals can fit I different boats? • Compare how cars move down ramp/gutters. • Compare how wheels turn when sand or water is poured through. • 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.	
Prior Learning & Understanding – 'Why here, why now?'	The Forces topic will build upon what the children learned in Nursery. • 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) This topic is a stepping stone to: • 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)	

<table>
<tr><td><u>Common Misconceptions</u></td><td colspan="2">Some children may think:

• all light objects float and all heavy objects sink
• objects made of the same material will always float or sink.</td></tr>
<tr><td><u>Enhancements, Enrichment & 'Hooks'</u></td><td colspan="2">• Pirate Day</td></tr>
<tr><td><u>Key Vocabulary</u></td><td colspan="2">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

Expose children to supplementary vocabulary such as:

• force, rotate, solid, liquid, gravity</td></tr>
<tr><td rowspan="2"><u>Links</u></td><td>Linked Texts</td><td>Linked Careers</td></tr>
<tr><td>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</td><td>Opportunities in the role-play corner to explore how to change how things work

• Boat builder
• Aircraft engineer
• Rocket designer
• Engineer</td></tr>
<tr><td rowspan="2"><u>How children might show their learning</u></td><td colspan="2"><u>Characteristics of effective teaching and learning:</u></td></tr>
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</table>

Demonstrating skills and showing understanding	**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.

South Gosforth First School – Science

Long Term Planning – Reception

Term:	**Continuous Provision**	
Science Curriculum Area	Sound	
Science Topic – Enquiry Question Title		
Development Matters	**Understanding the world** • Describe what they see, hear and feel whilst outside.	
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** • Making noise by blowing on a blade of grass • Making wind chimes • Using voices, instruments and other objects to mimic sounds they hear outdoors	• 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.

<table>
<tr><td><u>Encouraging Scientific Enquiry</u></td><td colspan="2"><u>Observing Over Time:</u> Listen to the siren of an emergency vehicle as it approaches and moves away.
<u>Pattern Seeking</u>: N/A
<u>Research:</u> N/A
<u>Identifying & Classifying:</u> N/A
<u>Comparative Test:</u>
• How does rain sound different when it lands in different containers?</td></tr>
<tr><td><u>Prior Learning & Understanding – ‘Why here, why now?’</u></td><td colspan="2">The Sound topic will build upon what the children learned in Nursery.
• Explore how things work. (Nursery)

This topic is a stepping stone to:
• 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)</td></tr>
<tr><td><u>Common Misconceptions</u></td><td colspan="2">Some children may think:

• sounds do not travel through solids and liquids.</td></tr>
<tr><td><u>Enhancements</u></td><td colspan="2">• Visit to the nature garden.</td></tr>
<tr><td><u>Key Vocabulary</u></td><td colspan="2">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</td></tr>
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<tr><td>Traditional stories and nursery rhymes

• One Coconut, Two Coconuts</td><td>Opportunities in the role-play corner to listen to sounds</td></tr>
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<tr><td></td><td colspan="2">

- 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

</td><td>

• Sound effect artist

</td></tr>
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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.

</td><td>

- Can describe sounds they hear.
- Can identify the source of sounds.
- Can describe how they make sounds.

</td></tr>
</table>