




## Science in the Early Years- Reception

Term Topic	Area of Learning	Concepts		
		 <b>Nature</b> Knowing about the natural world Nature	 <b>Phenomenon</b> Observing facts and events Phenomenon	 <b>Real World</b> Know about scientists and science in our everyday lives The Real World
<b>Reception Autumn 1</b>  <b>Family</b>	CL		-Listen to sounds in the environment and identify what they hear. -Respond to questions about how being outside made them feel. For example, 'What did you like best about being outside? Was anything particularly exciting/ calming for you? Why do you think it is good to be outside and with nature?'	-Learn to ask and answer questions. -Understand 'why' questions.
	PSED	-Notice and name body sensations, thoughts, and emotions.		
	PD	-Develop the skills to manage the school day successfully, e.g. lining up, personal hygiene etc.		-Describe a range of different food textures and tastes when cooking and notice changes when they are combined or exposed to hot temperatures.
	UW	-All living creatures are born, grow, reproduce and change over time. -Learn the lifecycle of a human. There are six stages in the human life cycle: Foetus, baby, childhood, adolescence, adulthood and old age.	-Explore, appreciate and be inquisitive about the natural world.	-Identify patterns in nature, e.g. tree bark, flower petals or leaf shapes.
<b>Reception Autumn 2</b>  <b>Changes</b>	CL			-Learn expressions for agreeing and disagreeing. -Learn to distinguish between facts and opinions. -Opinions tell us what someone thinks or believes. An opinion has no proof and can change from person to person.

	PSED	<ul style="list-style-type: none"> <li>-Acknowledge that people do indeed look different, but recognise things they have in common.</li> <li>-Know the importance of sleep and how it contributes to a healthy lifestyle.</li> <li>-Learn strategies to support going to sleep, including turning off devices before bedtime, exercising, calming bedtime routines, having a regular bedtime and to avoid stimulants before bedtime.</li> <li>-Learn the names of traditional winter vegetables and why they contribute to a healthy diet.</li> </ul>		<ul style="list-style-type: none"> <li>-All people have the right to an opinion and for it to be listened to and taken seriously.</li> <li>-Understand different points of view and learn how to challenge their own and others' thinking.</li> <li>-Learn how people store food safely at home in cupboards, fridges and freezers.</li> </ul>
	UW	<ul style="list-style-type: none"> <li>-Recognise the similarities and differences between their own and others' features.</li> <li>-Name the basic parts of the human body.</li> <li>-Know why animals hibernate in winter and how they prepare for hibernation.</li> <li>-In the UK the following animals all hibernate: hedgehogs, bats, dormice, some insects (e.g. bumblebees, some butterflies and ladybirds), amphibians (frogs, toads and newts), reptiles (grass snakes, adders, slow worms).</li> <li>-Learn how animals in the UK use the environment to survive in winter.</li> <li>-Begin to develop an understanding between the differences between how animals and people survive in winter.</li> </ul>	<ul style="list-style-type: none"> <li>-Use senses to compare different textures of materials.</li> <li>-Describe the texture of materials using appropriate adjectives.</li> <li>-Identify clothing that is suitable for all weather conditions and understand why it is necessary.</li> <li>-Every year, Planet Earth experiences four seasons: autumn, winter, spring and summer.</li> <li>-Understand the effect that the changing seasons on the natural world around them.</li> <li>-Observe and talk about changes in the weather and the seasons.</li> <li>-Know that water freezes at 0°C and turns into a solid (ice).</li> <li>-Frost is made by a layer of water that freezes on things outside over night when the temperature is below 0°C.</li> <li>-Make comparisons between the temperature in the morning, afternoon and evening.</li> </ul>	<ul style="list-style-type: none"> <li>-Use what they have observed in addition to their own ideas to suggest answers to questions.</li> <li>-Different materials have different features, or properties, which make them suitable for different uses.</li> <li>-Water cannot penetrate waterproof materials. Raincoats often have a plastic coating because plastic is waterproof.</li> <li>-Learn to group objects according to the material they are made from.</li> <li>-Sort materials according to their properties such as waterproof/ not waterproof.</li> <li>-Develop sorting and classifying skills, for example by sorting leaves from coniferous/ deciduous trees.</li> <li>-Freezing has multiple usages in everyday life (preservation of food).</li> </ul>
<b>Reception Spring 1</b> <b>Healthy Living</b>	CL			<ul style="list-style-type: none"> <li>-Time connectives make it easy for us to understand the order of when something happened.</li> <li>-Listen to and talk about non-fiction texts to develop a deep familiarity with new knowledge and vocabulary.</li> </ul>
	PSED	<ul style="list-style-type: none"> <li>-Taking care of your teeth helps prevent plaque, which is a clear film of bacteria.</li> </ul>		

		<ul style="list-style-type: none"> <li>-Brush teeth at least twice a day - after breakfast and before bedtime for at least 2 or 3 minutes.</li> <li>-Fizzy drinks/juices especially ones that contain sugars and acids can cause tooth decay.</li> <li>-Milk and cheese are tooth-friendly foods. They contain calcium which will help to repair tooth enamel.</li> <li>-Keeping healthy means doing things that are good for your body – things like eating nutritious food, exercising, brushing your teeth, sensible amounts of ‘screen time’ and getting enough sleep.</li> <li>-Fruit and vegetables are an important part of a healthy, balanced diet.</li> <li>-You should not eat more than what your body needs to keep healthy and energised during the day.</li> <li>-Understand the motivations for exercise should be health, enjoyment and social interactions, rather than weight management.</li> <li>-Learn how to make a healthy, balanced meal and what it should include (Meat, fish and alternatives/ fruit and vegetables/ dairy products/ breads, cereals and potatoes/ foods containing fat and sugar).</li> </ul>		
	PD	<ul style="list-style-type: none"> <li>-When you exercise, you breathe faster so you take in more air and your heart beats harder.</li> <li>-These exercises get your heart rate to increase: swimming, running, walking, football, riding your bike/scooter, skipping etc.</li> <li>-Exercise is important because it helps the body to have: stronger muscles and bones.</li> <li>-All people have different athletic abilities and body types.</li> <li>-Notice how varied people are - how they come in all colours, shapes, and sizes.</li> </ul>		<p>-Be able to recognise the change in their bodies from before, during and after exercise.</p>

		Link respect for diversity in weight and shape with respect for diversity in race, gender, ethnicity etc.		
	UW	<ul style="list-style-type: none"> <li>-Humans get two sets of teeth in their lifetime.</li> <li>-Baby teeth can start to appear as early as three months old. These fall out and are replaced by adult teeth.</li> <li>-Adult teeth start to push through at approx. 6 or 7 years old.</li> <li>-Human teeth are designed for eating a very mixed diet of plants and animal foods. An animal that has a mixed diet is called an omnivore.</li> </ul>		<ul style="list-style-type: none"> <li>-A magnifying glass is a lens which makes things appear bigger, so you can see them better.</li> <li>-Look closely using equipment.</li> <li>-Know where some food comes from and give examples of food that is grown.</li> </ul>
<b>Reception Spring 2</b>  <b>Tales from around the World</b>	CL	-Sort and classify animals by their suitability to be a pet. Speak in full sentences using because and give a reason to justify their decision.		<ul style="list-style-type: none"> <li>-A Venn diagram is a method used to sort items into groups.</li> <li>-Develop vocabulary to make comparisons.</li> </ul>
	PSED			-The purpose of cooling down after exercise is to return your heart rate close to resting. Stopping quickly without a cool down can result in light-headedness, dizziness and/or fainting.
	PD			<ul style="list-style-type: none"> <li>-Recognise the importance of personal hygiene and how to keep themselves clean (bathing, brushing teeth, washing hands or covering their mouth when they cough etc).</li> <li>-Know how to wash their hands properly with soap and water and when it is necessary to do so.</li> </ul>
	UW	<ul style="list-style-type: none"> <li>-Ducks are a collection of different species of bird. They are waterfowls, with feathers and webbed feet specially adapted to life in and around water.</li> <li>-Understand the key features of the life cycle of a duck.</li> <li>-A habitat is a place that an animal lives. It provides the animal with food, water and shelter.</li> <li>-Identify the features of suitable habitats for ducks.</li> </ul>	<ul style="list-style-type: none"> <li>-Butter is a dairy product made from the fat and protein in milk or cream.</li> <li>-If cream is shaken, butter will form. Buttermilk will separate from the butter.</li> <li>-The weather in jungles is very hot and humid. The weather is always warm and there is never any winter or freeze period.</li> <li>-Understand that the temperature in the jungle is hotter than in London.</li> <li>-Keep a weather diary to monitor daily changes in the weather for a week, including</li> </ul>	<ul style="list-style-type: none"> <li>-Participate in a science investigation enthusiastically, observing changes closely and suggest answers to questions.</li> </ul>

		-There are many different sorts of habitats around the world.	temperature, rainfall and wind direction/ speed.	
<b>Reception Summer 1  The Environment</b>	CL	-Listen attentively to a blog about the ocean and respond with relevant comments or questions. -Recognise objects, characters and animals from a description.	-Use simple scientific language to communicate ideas and name phenomena.	-Generate questions using the words, what, when, how and why to find out information. -Learn the language to reason and persuade e.g. 'I think...because...' -Use this language when justifying their opinions. -Suggest possible hypotheses, apply imagination to their thinking, and to look for alternative explanations and ideas through philosophical discussion. For example, 'Can something be alive and not alive? Does a raindrop die when it hits the ground? Can something be alive if it's not real?'
	PSED	-People and other living things have different needs; know about the responsibilities of caring for living things. -Recognise that some things are private and the importance of respecting privacy. -Parts of their body covered by underwear are private.		-Information can be retrieved from computers, tablets and smartphones. Know to tell an adult if what they see makes them feel worried.
	UW	-In the UK there are different types of coastline, e.g. sandy bays, shingle, stony, caves and cliffs. -Identify and understand the needs of different living things and what they need to survive. -Animals need air, water, food, and shelter (protection from predators and the environment); plants need air, water, nutrients, and light. -In the UK, badgers live in mixed-sex groups in underground 'setts'. A social group living together in the same sett is also known as a 'clan'.	-Sequence the phases of the moon by identifying the moon's shape. Introduce the language, new moon, crescent, gibbous, full moon. -The Moon shines brightly in the night sky, but it does not produce its own light. We see the Moon because it reflects light from the Sun. -The Sun produces light/ heat from burning gases. -Opaque materials do not let any light pass through them. -The planet is getting warmer because of burning rubbish. -If plastic is not recycled, it can end up in the ocean. -You can recycle glass, metal, paper and plastic. -The '3 R's' stand for reduce, reuse, recycle.	-Understand how plastic can cause pollution. -Use photos/ videos to explore their feelings about plastic pollution. -Use a range of sources of information including ICT. -Explore and describe the way some everyday materials change when they are heated or cooled. -Solids and liquids can be changed from one state to another by heating or cooling. -Heat melts a solid and turns it into a liquid. Cooling freezes a liquid into a solid. -Be able to make predictions and evaluate their predictions following an investigation. -Investigate shadows and develop an understanding that for a shadow to be formed an object must block light. The object must be opaque or translucent to make a shadow.

			<ul style="list-style-type: none"> <li>-Explore the local area identifying both the built and the natural environment. Express their opinions on natural and built environments.</li> <li>-Explore the outdoor space and examine how plants attract wildlife.</li> <li>-Bird feeders encourage birds to visit the garden as they provide them with a source of food.</li> </ul>	<ul style="list-style-type: none"> <li>-Investigate solar energy, by building a solar oven (using a cardboard box, black paper and tin foil) to melt marshmallows. Observe and comment on the change of state.</li> <li>-Consider a range of steps that can be taken to reduce rubbish pollution.</li> <li>-Sort and classify materials by their properties (glass, metal, paper and plastic).</li> <li>-Identify whether food packaging can be recycled.</li> <li>-Find out about the environment by talking to people, examining photographs and simple maps.</li> <li>-Recognise that flowers, plants and trees are vital for life, our wellbeing and our long-term survival.</li> <li>-Explore the differences between living and non-living things and sort living things into groups, explaining how they have sorted them.</li> <li>-Use a range of sources to find out more information about animal homes (e.g., non-fiction books and the internet).</li> <li>-Many everyday appliances require electricity from mains electricity or batteries.</li> <li>-Electricity can be dangerous and appliances must be used safely. Understand that some appliances are less dangerous than others.</li> <li>-Explore a variety of classroom objects, investigating whether they use electricity or not.</li> </ul>
<b>Reception Summer 2  Mini-Beasts and Habitats</b>	CL	-Describe the characteristics of different animals, e.g. stripy/ smooth or their behaviour, e.g. dangerous/ poisonous.		-Use comparative adjectives (bigger/ smaller) and superlative adjectives (largest/prettiest) to describe the similarities and differences between reception and year 1.
	PSED	-Treat animals in the environment with care and sensitivity. -Recognise the body sensations of these emotions.		
	PD	-Understand the importance of healthy daily routines (morning and evening) and the impact these have on their well-being.		-Understand that food that has been dropped on the floor, touched with dirty hands or has turned mouldy should not be eaten and can make people ill.

		<p>-Some plants can be dangerous to touch. Recognise stinging nettles and know why they should not touch these plants.</p> <p>-A dock leaf is an effective natural remedy for nettle rash.</p>		<p>-Describe the taste of some familiar ingredients and make comparisons (e.g. maple syrup and honey).</p>
	UW	<p>-A ladybird's lifecycle has four stages: egg, larva, pupa and adult.</p> <p>-Many species of ladybird are named after the number of spots (2-spot, 7-spot, 10-spot). Not all ladybirds have spots, some have stripes, patches or streaks.</p> <p>-Different minibeasts favour different environments based on what they eat and where they lay their eggs.</p> <p>-The colour and appearance of minibeasts are key to their survival. Discuss the way different invertebrates use colour for warning others and camouflage.</p> <p>-Stinging nettles are a type of plant which have stinging defensive hairs. They are very important for wildlife. Ladybirds and many butterflies lay their eggs on stinging nettles.</p> <p>-The scientific term for mini-beasts is 'invertebrates' - a creature without a backbone.</p>	<p>-Explore the natural environment looking for minibeasts and identify their habitats.</p> <p>-Use technology to capture images of minibeasts in the environment.</p> <p>-Understand the effect of seasons on the world around them, identify the changes in wildlife and nature in the summer season.</p> <p>-Participate in fieldwork by describing their environment using observation, discussion, maps and books.</p>	<p>-Compare the lifecycles of living things recognising similarities and differences (ducks, caterpillars, humans).</p> <p>-Recognise symmetry in mini-beasts.</p> <p>-Sort insects into groups, e.g. carnivore/ herbivore or camouflage/ brightly coloured.</p> <p>-Investigate the number of legs and body parts common invertebrates have.</p> <p>-Research invertebrates using the internet or non-fiction texts.</p>