Science

What does Science look like in Nursery?	Understanding the world Use all their senses in hands- on exploration of natural materials. Explore collections of materials with similar and/or different properties. Talk about what they see, using a wide vocabulary. Explore how things work. Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant and an animal. Explore and talk about different forces they can feel. Talk about the differences between materials and changes they notice. Communication and language Understand 'why' questions, like: "Why do you think the caterpillar got so fat?" Be able to express a point of view and to debate when they disagree with an adult or a friend, using words as well as actions.	Characteristic which may support future learning in History Playing and Exploring Reach for and accept objects. Make choices and explore different resources and materials. Bring their own interests and fascinations into early years settings. This helps them to develop their learning. Respond to new experiences that you bring to their attention. Creating and thinking critically Know more, so feel confident about coming up with their own ideas. Make more links between those ideas.
What does Science look like in Reception?	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. Communication and language Learn new vocabulary. Ask questions to find out more and to check they understand what has been said to them. Articulate their ideas and thoughts in well-formed sentences. Engage in non-fiction books. Listen to and talk about selected non-fiction to develop a deep familiarity with new knowledge and vocabulary. Describe events in some detail. Use talk to help work out problems and organise thinking and activities explain how things work and why they might happen.	

	Year 1 Knowledge	**Year 1 Vocabulary**	**Year 2 Knowledge**	**Year 2 Vocabulary**
	Animals Including Humans Knowledge • Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals • Identify and name a variety of common animals that are carnivores, herbivores and omnivores. • Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) • Identify, name, draw and label the basic parts of the human body and say	As EYFS plus teeth, shoulders, knee, ankle, elbow, wrist, hips, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves Names of animals experienced firsthand from each vertebrate group Children could use: mammal, reptiles amphibians, fish, birds and insects. or know the key characteristics of each, although they will probably be able to identify birds and fish, based on their characteristics. The children also do not need to use the words carnivore, herbivore and omnivore. If	Animals including humans knowledge • Notice that animals, including humans, have offspring which grow into adults. • Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). • Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. • Observing through video or first-hand observation and measurement, how different animals including humans grow. Ask questions about what things animals need for survival and what humans need to stay healthy.	Mammals, birds, reptiles, amphibians, fish and insects (revision from Yr. 1) Life cycle, offspring, reproduction, pregnancy, egg, growth, young/old stages (examples - chick/hen, baby/toddler/child/teenager/adult, caterpillar/butterfly, spawn/tadpole/froglet/frog), elderly, spawn, herbivore, carnivore, omnivore, exercise, heartbeat, breathing, hygiene, germs, disease, diet, nutrients, vitamins, minerals, diary, fats, sugars, energy foods, food types

	which part of the body is associated with each sense. • Use their observations to compare and contrast animals first hand or through videos and photographs, describing how they identify and group them. Group animals according to what they eat, using their senses to compare different textures, sounds and smells (working scientifically).	they do, ensure that they understand that carnivores eat other animals not just meat. Humans Parts of the body including those linked to PSHE teaching (see joint document produced by the ASE and PSHE association) Senses, touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear and tongue NB. Although we often use our fingers and hands to feel objects the children should understand that we can feel with many parts of our body	Suggest ways to find answers to their questions (working scientifically).	(examples – meat, fish, vegetables, bread, rice, pasta) gills, lungs
	<u>Everyday Materials</u> •Distinguish between an object and the material from which it is made. •Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. •Describe the simple physical properties of a variety of everyday materials. •Compare and group together a variety of everyday materials on the basis of their simple physical properties. •Perform simple tests to explore questions. For example: what is the best material for an umbrella? for lining a dog basket?, for curtains?, for a bookshelf?, for a gymnastics leotard? (working scientifically)	Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull	<u>Everyday Materials</u> •Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. •Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. •Compare the use of everyday materials in and around school with other places such as home, journey to school, visits etc. Identify and classify the uses of different materials and record their observations. Find out about people who developed new and useful materials. Identify and discuss why some materials are good for some things and not for others (working scientifically).	Names of materials – increased range from year 1 Properties of materials - as for year 1 plus opaque, transparent and translucent, reflective, nonreflective, flexible, rigid, shape, push/pushing, pull/puling, twist/twisting, squash/squashing. Bend/bending, stretch/stretching
	<u>Plants</u> •Children will be taught to identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. •They should be able to identify and describe the basic structure of a variety of common flowering plants, including trees. •Closely observe using magnifying glasses. Compare and contrast with familiar plants, describing how they can identify and group them. Keep records	Leaves, blossom, petals, roots, buds, bulb, trunk, branches, stem, evergreen, garden plants, deciduous, wild plants, seeds, garden plants in the local area.	<u>Plants</u> •Children should be taught to observe and describe how seeds and bulbs grow into mature plants. •Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. •Observing and recording, with accuracy, the growth of a variety of plants. Discussing how they change over time from a seed or bulb. Closely observe the same plants at different stages of growth. Setting up comparative tests	As for year 1 plus - light, shade, sun, warm, cool, water, grow, healthy, germinate

	on how plants change over time, including leaves falling off trees and buds opening. Compare what they have found out about different plants (working scientifically).		to show that plants need light and water to stay healthy (working scientifically).	
	<u>Seasonal Changes</u> •Observe changes across the four seasons. •Observe and describe weather associated with the seasons and how day length varies. •Observe the weather over time (days, weeks, months). Make tables to record and compare weather. Record the length of day in different seasons (working scientifically). <u>Working Scientifically</u> •Ask simple questions and recognise they can be answered in different ways •Observe closely using simple equipment •Perform simple tests •Identify and classify •Use observations and ideas to suggest answers to questions •Gather and record data to help in answering questions Yr. 1 Brunswick School •Ask simple questions •Begin to predict. •Suggest ways to set up a simple test. •Health and safety in science is discussed. •Talk about what they see and do. •Make observations using appropriate senses. •Draw simple pictures to record observations.	Weather (sunny, rainy, windy, snowy etc.), seasons (Winter, Summer, Spring, Autumn), sun, sunrise, sunset, day length prediction equipment record table test fair data beakers pipettes measuring cylinders naked eye hand lenses magnify observe lab coat	<u>Living Things and their Habitats</u> •Explore and compare the differences between thingsthat are living, dead, and things that have never been alive. •Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. •Identify and name a variety of plants and animals in their habitats, including microhabitats. •Describe how animals obtain theirfood from plants and other animals, usingthe idea of a simple food chain, and identify and name different sources of food. •Sorting and classifying things to whether they are living, dead or were never alive and record their findings. Describe how they decided to place things and ask questions such as 'Is a flame alive?'. Construct simple food chains which includes humans. Describe the conditions in different habitats and micro-habitats (under logs, on stony path, under bushes) and find out how the conditions affect the number and type(s) of plants and animals that live there (working scientifically) <u>Working Scientifically</u> •Ask simple questions and recognise they can be answered in different ways •Observe closely using simple equipment •Perform simple tests •Identify and classify •Use observations and ideas to suggest answers to questions	Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, habitat, micro-habitat, conditions, ocean, rainforests, desert, damp, herbivore, carnivore, omnivore, shade, names of local habitats e.g. pond, woodland, wetlands etc., names of micro-habitats e.g. under logs, in bushes etc As Yr. 1 plus: hypothesis comparison conclusion

	•Use and know when to use range of equipment – beakers, hand lenses pipettes, egg timers •Measure using non-standard units. •Be familiar with and successfully use a T table. •Make simple comparisons. •Talk about what has happened and was it what they expected. •Use some scientific vocabulary. •Use observations to make new predictions		•Gather and record data to help in answering questions Yr. 2 Brunswick School •Ask scientific questions •Make predictions •Recognise that questions can be answered in different ways. •Name simple equipment and their parts •Decide what to find out, observe or measure. •Pupils make decisions in the setting up of investigations. •Observe closely using simple equipment •Use non-standard measurements. •Make a numerical comparison •Identify and classify •Children are aware of health and safety in science •Gather and record data to help in answering questions. •Understand and use a T tables •Draw pictures or write results in the correct place in a table that has mostly been constructed by the teacher. •Communicate what they have found out using simple scientific language •Use their observations and ideas to suggest answers to questions	
Year 1 & 2 Skills	<u>Animals Including Humans</u> Use their observations to compare and contrast animals first hand or through videos and photographs, describing how they identify and group them. Group animals according to what they eat, using their senses to compare different textures, sounds and smells (working scientifically).			
	<u>Everyday Materials</u> Perform simple tests to explore questions. For example: what is the best material for an umbrella? for lining a dog basket?, for curtains?, for a bookshelf?, for a gymnastics leotard? (working scientifically)			
	<u>Plants</u> Closely observe using magnifying glasses. Compare and contrast with familiar plants, describing how they can identify and group them. Keep records on how plants change over time, including leaves falling off trees and buds opening. Compare what they have found out about different plants (working scientifically).			
	<u>Seasonal Change</u>			

	Observe the weather over time (days, weeks, months). Make tables to record and compare weather. Record the length of day in different seasons (working scientifically).
	<u>Working Scientifically</u> •Ask simple questions and recognise they can be answered in different ways •Observe closely using simple equipment •Perform simple tests •Identify and classify •Use observations and ideas to suggest answers to questions •Gather and record data to help in answering questions