

Knowing More. Remembering More. Applying More!
Assessment in Science (Year 3)

Teachers to assess how well children have learned the required knowledge at the end of each term.

Working Towards (WTS) **Expected (EXS)** **Greater Depth (GDS)**

	Autumn Term 1 - Electricity	Autumn Term 2 - Classification	Spring Term 1 - Animals	Spring Term 2 - Digestion	Summer Term 1 - Plants	Summer Term 2- Animal habitats
Prior learning	Children know about similarities and differences in relation to places, objects, materials and living things.	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 - Animals including humans)	Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). (Y2 - Animals, including humans).	Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals, including humans)	Find out and describe how plants need water, sunlight and suitable temperature to grow.(Y2)	Identify and name a variety of plants and animals in their habitats, including microhabitats. (Y2 - Living things and their habitats)
Substantive Key Knowledge and how it is applied	Identify common appliances that run on electricity. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.	Can use classification keys to identify unknown plants and animals. Can discuss similarities between animals and their environment.	Can state that to be healthy we need to eat the right types of food to give us the correct amount of these nutrients. Can name some bones that make up their skeleton, giving examples that support, help them move or provide protection	Describe the simple functions of the basic parts of the digestive system in humans. Identify the different types of teeth in humans and their simple functions.	Can explain the function of the parts of a flowering plant Can describe the life cycle of flowering plants, including pollination, seed formation, seed dispersal, and germination	To identify specific animals and their habitats, discussing why certain animals are suited to live in different environments.
Disciplinary knowledge needed to understand the concept	Identify an electrical circuit consists of a cell or battery connected to a component using wires and discuss open and closed circuits.	Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.	Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food - they get nutrition from what they eat.	Understand that nutrients need to be broken down and absorbed into animals including humans. Know that nutrients are essential for life of many animals.	To know what a plant needs to grow and understand what happens if those requirements are not present	To understand why animals choose particular homes and know why they choose that environment. To recognise environments can change having an impact on the animals living there.
Key vocabulary	Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery,, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol	Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate	Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, joints, support, protect, move, skull, ribs, spine	Digest, absorb, move, mouth, oesophagus, stomach, small intestine, excrete, molar, premolar, canine, incisor	Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal)	environment, habitat, human impact, positive, negative, migrate, hibernate
Future learning	Use recognised symbols when representing a simple circuit in a diagram. (Y5 - Electricity)	Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, (Y6 - Living things and their habitats)	Construct and interpret a variety of food chains, identifying producers, predators and prey. (Y4 - Animals, including humans)	Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. (Y6 - Animals, including humans)	Describe the life process of reproduction in some plants and animals. (Y5 - Living things and their habitats)	Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. (Y5 - Living things and their habitats)

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Assessment in Science (Year 4)

Teachers to assess how well children have learned the required knowledge at the end of each term.

Working Towards (WTS) **Expected (EXS)** **Greater Depth (GDS)**

	Autumn Term 1 - Light	Autumn Term 2 - Sound	Spring Term 1 - Forces and magnets	Spring Term 2 - States of matter	Summer Term 1 – Rocks and soils	Summer Term 2– Respecting the environment
Prior learning	Describe the simple physical properties of a variety of everyday materials. (Y1 - Materials)	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)	Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses of everyday materials)	Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses of everyday materials)	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Y2 - Uses of everyday materials)	Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). (year 2- animals including homes)
Substantive Key Knowledge and how it is applied	To use knowledge of light and find, natural and man made sources. Use torches understand how it travels and what blocks it.	Identify how sounds are made, associating some of them with something vibrating. • Recognise that vibrations from sounds travel through a medium to the ear.	Compare how things move on different surfaces. • Notice that some forces need contact between two objects, but magnetic forces can act at a distance.	To understand the differences between solids, liquids and gases, what happens when materials are heated and cooled, understand the water cycle and evaporation and condensation within it.	Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Describe in simple terms how fossils are formed when things that have lived are trapped within rock.	To use their knowledge of their environment to suggest how we can change our habits and respect the world we live in, to understand how we can clean and maintain our environment
Disciplinary knowledge needed to understand the concept	To learn about different light sources, to understand how light travels through; translucent, transparent and opaque materials including shadow formation.	To learn what makes sound, that sound travels through vibrations and that it has different pitch. Recognise that sound gets fainter the further away you get	To understand what a force is, how magnets exert different forces, to know what they are attracted to. To understand friction and the role of a force meter. Know that different surfaces will exert different amounts of friction.	To recognise the three states of matter and how they differ, look at how reactions can change one state to another.	To understand the characteristics of different rocks and their properties. To know how different rocks and formed and how fossils are formed within them.	To understand how humans have an impact on the quality of water in our rivers, to know other pollutants,
Key vocabulary	Dark, shadow, opaque, direction, light travels, transparent, Translucent, shortest, longest, highest, object, material, light source, sun, night, day	Sound, pitch, loudness, vibrate, vibration, vibrating, tuning, muffle, Quiet, soft, loud, high, low, noise, source	Friction, force meter, newton, resistance, magnet, spring Metal, iron, copper, aluminium, steel, brass, attract, repel, attraction, repulsion	material, solid, liquid, gas, melt, freeze, dissolve, solution oxygen, carbon dioxide, air, evaporation, condensation	slate, granite, chalk, sandstone, soil, clay, limestone, sand marble, absorbent, characteristic, surface	Environment, rivers, water, pollution, clean, protect, issues
Future learning	Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. (Y6 - Light)	Frequencies of sound waves, measured in Hertz (Hz); echoes, reflection and absorption of sound. (KS3) ,	Identify the effects of air resistance, water resistance and friction, that act between moving surfaces. (Y5 - Forces)	Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. (Y5 - Properties and changes of materials)	Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. (Y6 - Evolution and inheritance)	Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, (year 5- properties and change of materials)

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Assessment in Science (Year 5)

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Working Towards (WTS) **Expected (EXS)** **Greater Depth (GDS)**

	Autumn Term 1 - Forces	Autumn Term 2 - Electricity	Spring Term 1 - Earth and space	Spring Term 2 - Properties of change	Summer Term 1 – Living things and habitats	Summer Term 2– Animals including humans
Prior learning	Notice that some forces need contact between two objects, but magnetic forces can act at a distance. (Y4 - Forces and magnets)	Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. (Y3 - Electricity)	Observe and describe weather associated with the seasons and how day length varies. (Y1 - Seasonal changes)	Compare and group materials together, according to whether they are solids, liquids or gases. (Y4 - States of matter)	Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Y3 - Plants)	Notice that animals, including humans, have offspring which grow into adults. (Y2 - Animals, including humans)
Substantive Key Knowledge and how it is applied	To understand what gravity is and the effect it has. To understand what air and water resistance and friction are. To understand how levers, pulleys and gears use force.	To understand that using different amounts of cells will have an effect on at he brightness of light or sound of the buzzer. To understand how to represent their ideas using symbols	To understand the movement and rotation of different planets and how this creates night and day and the apparent movement of the sun across the sky.	To understand how we compare and group different materials according to their properties. To understand dissolving filtering evaporation and separation of materials. Understand what changes are reversible and irreversible.	To learn and describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird Describe the life process of reproduction in some plants and animals.	To describe the changes as humans enter stages of life and understand the changes apparent when humans meet puberty.
Disciplinary knowledge needed to understand the concept	To recognise that a force is a push or pull motion which effects objects around us.	To know how to represent a circuit using symbols and how to change the brightness/ loudness by varying the amount of cells	To recognise that there a variety of planets in our solar system and relate how they move around the sun.	To know the properties of materials and know how different processes will affect them.	To recognise that living things differ in their life cycles but all follow a process of reproduction and growth.	To understand living things change as they grow old in order to reproduce.
Key vocabulary	gravity, acceleration, newtons, air-resistance , up thrust, friction, axle, pulley, gear, fulcrum, lever, ratio, ramp	circuit, conductor, insulator, symbol, circuit diagram, component, voltage, brightness, switch, cell	earth, sun, moon, sphere, revolve, orbit, spin, rotate axis, sunrise / sunset, north, south, east, west	mixture, dissolve, solvent, solution, solute, soluble , Insoluble, filtration, evaporation, condensation, solid, liquid, gas, solidify, freezing, insulate	Reproduce/ reproduction, stamen, stigma, sepal, petal, ovary, pollen, Style, Germinate/ germination,	Fertilise/ fertilisation, pollination, Disperse / dispersal, life cycle, babyhood, childhood, adolescence, adulthood
Future learning	Using force arrows in diagrams, adding forces in one dimension, balanced and unbalanced forces. (KS3)	Electric current, measured in amperes, in circuits, series and parallel circuits, currents add where branches meet and current as flow of charge. (KS3)	Our Sun as a star, other stars in our galaxy, other galaxies. (KS3)	Chemical reactions as the rearrangement of atoms. (KS3) Representing chemical reactions using formulae and using equations. (KS3)	Reproduction in plants, including flower structure, wind and insect pollination, fertilisation, seed and fruit formation and dispersal, including quantitative investigation of some dispersal mechanisms. (KS3)	Reproduction in humans (as an example of a mammal), including the structure and function of the male and female reproductive systems, menstrual cycle (without details of hormones. (KS3)

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Assessment in Science (Year 6)

Teachers to assess how well children have learned the required knowledge at the end of each term.

Working Towards (WTS) **Expected (EXS)** **Greater Depth (GDS)**

	Autumn Term 1 - Heart and lungs	Autumn Term 2 - Classification	Spring Term 1 - SATS gap	Spring Term 2 - S Gap	Summer Term 1 – Light	Summer Term 2– Evolution
Prior learning	Describe the simple functions of the basic parts of the human digestive system (year3- animals including humans)	Recognise that living things can be grouped in a variety of ways (year 3 - classification)			Recognise that shadows are formed when the light from a light source is blocked by an opaque object. (Y4 - Light)	Describe in simple terms how fossils are formed when things that have lived are trapped within rock. (Y4 - Rocks)
Substantive Key Knowledge and how it is applied	Identify and name the main parts of the hum circulatory system, and describe the function of the heart, blood vessels and blood.	Explore and use classification keys to help group, identify and name a variety of local things in a local and wider environment.			To recognise that light appears to travel in straight lines use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye	To research how plants and animals have adapted and changed over time and the reasons why.
Disciplinary knowledge needed to understand the concept	Understand that body systems work together to maintain a healthy life and recognise the function of nutrient and gas exchange.	Describe how living things are classified into broad groups according to common observable characteristics .			.To explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes To use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.	To understand how animals and plants adapt and change over time and how animals produce offspring in their own likeness.
Key vocabulary	Heart, circulation, pulse, muscle, blood vessel, lung, breathe activity	mammals, plants, animals, vertebrates, invertebrates, reptiles, amphibians, fish, birds, species, environment, habitat, extinct, virus, bacteria, microorganism, algae, fungi, decay, microbe			Light, beam, reflect / reflection, opaque, mirror, source, reflected, Travel, block, shiny surface	natural selection, survival, variation, inherited, adaption, hypothesis, DNA, mutation,, camouflage, predator / prey, organism, fossil, characteristic
Future learning	The mechanism of breathing to move air in and out of the lungs (KS3)	Differences between species (KS3)			The similarities and differences between light waves and waves in matter. (KS3)	Heredity as the process by which genetic information is transmitted from one generation to the next. (KS3)

Newport Junior school
Science map

