

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 – Animals	Spring Term 1 – Digestion	Spring Term 2-Classification	Summer Term 1– Animal habitats	Summer Term 2 – Plants
Prior learning	Children know about similarities and differences in relation to places, objects, materials and living things.	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)	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 plants and animals in their habitats, including microhabitats. (Y2 - Living things and their habitats)	Find out and describe how plants need water, sunlight and suitable temperature to grow.(Y2)
Substantive Key Knowledge	<ul style="list-style-type: none"> I can identify common appliances that run on electricity. I can explain how electricity is generated. I can explain how a circuit works, understanding open and closed circuits. 	<ul style="list-style-type: none"> I can compare animals based on diet. I can describe functions of the skeleton in animals and humans. I can name specific bones in the human body. 	<ul style="list-style-type: none"> I can explain the need for food in animals. I can name and describe parts of the human digestive system. I can compare functions of teeth. 	<ul style="list-style-type: none"> I can explain differences in groups of organisms. I can use key vocabulary to compare animals. I can use a classification key to identify organisms.. 	<ul style="list-style-type: none"> I can describe different habitats. I can explain how animals live in different habitats. I can discuss how animals have adapted to live in certain environments. 	<ul style="list-style-type: none"> I can name parts of a plant. I can describe functions of a plant. I can explain pollination in plants.
Disciplinary knowledge	<ul style="list-style-type: none"> I understand how to use electrical components. I understand how to create a closed circuit. I understand circuit components do a variety of jobs. 	<ul style="list-style-type: none"> I understand some animals have endo and exo skeletons. I understand how a skeleton affects movement. I understand that animals need the correct nutrition to support skeletons. 	<ul style="list-style-type: none"> I understand animals need nutrients to survive. I understand nutrients need to be broken down and digested. I understand different food produces different nutrients. 	<ul style="list-style-type: none"> I understand organisms are grouped together. I understand how to use a classification key. I understand how organisms are affected by their environment. 	<ul style="list-style-type: none"> I understand how environments can be different. I understand specific animals live in certain environments. I understand that certain animals have adaptations based on habitat. 	<ul style="list-style-type: none"> I understand parts of a plant have different functions. I understand some plants need pollinators. I understand plants need conditions to grow.
Key vocabulary	Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit,, cell, battery,, bulb, switch, buzzer, conductor, insulator	Carnivore, herbivore, omnivore, skeleton, bones, muscles, joints, support, protect, move, skull, ribs, spine	Digest, absorb, move, mouth, oesophagus, stomach, small intestine, excrete, molar, premolar, canine, incisor	Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate	environment, habitat, human impact, positive, negative, migrate, hibernate	Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal)
Future learning	Use recognised symbols when representing a simple circuit in a diagram. (Y5 - Electricity)	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 how living things are classified into broad groups (Y6 - 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)	Describe the life process of reproduction in some plants and animals. (Y5 - Living things and their habitats)
Spiritual question	<i>Should animals eat other animals?</i>		<i>Have humans found all species on earth? Should we keep looking?</i>		<i>Should humans continue changing the earth to live on?</i>	

Knowing More. Remembering More. Applying More! Assessment in Science (Year 4)s						
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– Respecting the environment	Spring Term 2 – States of matter	Summer Term 1 – Rocks and soils	SummerTerm 2 – Forces and magnets
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 is associated with each sense. (Y1 - Animals, including humans)	Find out about and describe the basic needs of animals, including humans, for survival (year 2- animals including homes)	Find out how the shapes of solid objects made from some materials can be changed. (Y2 - Uses of everyday materials)	Identify and compare the suitability of a variety of everyday materials,. (Y2 - Uses of everyday materials)	Find out how the shapes of solid objects made from some materials can be changed. (Y2 - Uses of everyday materials)
Substantive Key Knowledge	<ul style="list-style-type: none">I can identify natural and man made sources of light.I can explain how light travels and what blocks it.I can use a torch to explore light.	<ul style="list-style-type: none">I can describe how sounds are made.I can explain how sounds travel through vibrations.I can recognise how sound is picked up in the ear.	<ul style="list-style-type: none">I can explain what an environment is.I can identify natural and man made environments.I can describe how humans affect the environment.	<ul style="list-style-type: none">I can recognise solids, liquids and gases.I can describe the effect of heat and cooling on states of matter.I can explain the water cycle.	<ul style="list-style-type: none">I can name different types of rock.I can group rocks together based on properties.I can explain how rocks are formed, including fossils.	<ul style="list-style-type: none">I can explain how objects move based on forces.I can discuss how magnetism effects objects.I can identify magnetic and non magnetic substances.
Disciplinary knowledge	<ul style="list-style-type: none">I understand how light travels.I understand how shadows are formed.I understand different materials let different amounts of light through.	<ul style="list-style-type: none">I understand sound is related to vibrations.I understand sounds can differ based on pitch.I understand how distance affects sound.	<ul style="list-style-type: none">I understand humans impact the environment.I understand the effect of pollution on water.I understand some affects are reversible and others are not.	<ul style="list-style-type: none">I understand the differences between states of matter.I understand that matter can change form.I understand that some changes to the state of matter are reversable and irreversible.	<ul style="list-style-type: none">I understand rocks have different characteristics.I understand the formation of rocks affects their properties.I understand fossils relations to rock formation.	<ul style="list-style-type: none">I understand that force is push or pull.I understand the role of different forces on movement.I understand magnetisms affect in metallic objects.
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	Environment, rivers, water, pollution, clean, protect, issues	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	Friction, force meter, newton, resistance, magnet, spring Metal, , attract, repel, attraction, repulsion, gravity, friction
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) ,	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)	Use knowledge of solids, liquids and gases to decide how mixtures might be separated, (Y5 - Properties and changes of materials)	Recognise that living things have changed over time and that fossils provide information. (Y6 - Evolution and inheritance)	Identify the effects of air resistance, water resistance and friction, that act between moving surfaces. (Y5 - Forces)
Spiritual question	<i>‘If a tree falls in the forest, does it make a sound?’ If we don’t see or hear it, how do we know it happened?</i>		<i>Do we still have time to save the environment?</i>		<i>Should we mine rare metals for new technology?</i>	

<p align="center">Knowing More. Remembering More. Applying More! Assessment in Science (Year 5)</p>						
<p>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)</p>						
	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,(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	<ul style="list-style-type: none"> I can explain a force is a push or pull motion. I can describe different forces and their effects. I can measure forces. 	<ul style="list-style-type: none"> I can name and identify components of a circuit. I can draw simple circuits using symbols. I can describe the effect of more cells on a circuit. 	<ul style="list-style-type: none"> I can explain night and day based on rotation of the Earth. I can describe months based on the moons orbit. I can name planets in the solar system. 	<ul style="list-style-type: none"> I can identify states of matter. I can describe how matter can change. I can separate materials. 	<ul style="list-style-type: none"> I can explain the difference between types of organisms. I can identify differences in life cycles of types of animals. I can describe the reproduction of plants. 	<ul style="list-style-type: none"> I can explain how humans change. I can describe stages of life in humans. I can discuss affects of puberty.
Disciplinary knowledge	<ul style="list-style-type: none"> I understand forces have an effect on all objects. I understand forces can be effected by conditions around them. I understand how forces impact movement. 	<ul style="list-style-type: none"> I understand a circuit needs to be closed for electricity to flow. I understand more power varies from the amount of cells. I understand how circuits are drawn. 	<ul style="list-style-type: none"> I understand the effect of gravity on the solar system. I understand all planets orbit the sun. I understand the distance from the sun effects a planets conditions. 	<ul style="list-style-type: none"> I understand different materials have different properties. I understand heating, colling and dissolving effects state of matter. I understand some changes are reversible and irreversible. 	<ul style="list-style-type: none"> I understand all living things need to grow. I understand the importance of reproduction to living things. I understand the differences in organisms. 	<ul style="list-style-type: none"> I understand living things grow as they get older. I understand living things reproduce. I understand the change in humans that enables reproduction.
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,. (KS3)	Reproduction in humans (as an example of a mammal), including the structure and function of the male and female reproductive systems, (KS3)
Spiritual Question	<i>Will anything we know now.... One day be disproved?</i>		<i>Are you the centre of your own universe?</i>		<i>Should we genetically engineer plants? How about humans?</i>	

Knowing More. Remembering More. Applying More!

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	<ul style="list-style-type: none"> I can name the main parts of the circulatory and respiration system. I can describe functions of the circulatory and respiration system. I can discuss the purpose of blood and blood vessels. 	<ul style="list-style-type: none"> I can use a classification key. I can use key vocabulary to ask specific questions. I can use a classification key to identify organisms. 			<ul style="list-style-type: none"> I can discuss how light travels in a straight line. I can explain how light reflects off objects to be seen. I can investigate factors that affect shadow formation. 	<ul style="list-style-type: none"> I can explain the concept of evolution. I can describe how organisms adapt to their environment. I can discuss the formation of fossils to understand life from millions of years ago.
Disciplinary knowledge needed to understand the concept	<ul style="list-style-type: none"> I understand that body systems work together. I understand the importance of body systems to a healthy body. I understand how circulatory and respiration systems effect gas exchange. 	<ul style="list-style-type: none"> I understand living things are grouped based on attributes. I understand open and closed questions. I understand where the idea of classification developed. 			<ul style="list-style-type: none"> I understand the journey of light from source to our eye. I understand shadows have the same shape as the object blocking light. I understand how light can be measured and recorded. 	<ul style="list-style-type: none"> I understand plants and animals have changed over time. I understand that Charles Darwin formed the theory of evolution. I understand animals need to adapt to survive.
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,			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)
Spiritual question	Should we categorize humans?		Why do we base our knowledge on a couple tests?		Should people of faith learn science that makes contradictions?	

Newport Junior school
Science map

