Aldwyn Primary School – Year 4 Science Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit	Living things and their habitats	Electricity	Sound		States of matter	Animals including humans
Coverage	Classification	Mains and battery, conductors and insulators, circuits, switches	Vibrations, parts of the inner ear, exploring pitch and volume		Solids, liquids, gases and the water cycle	Teeth and digestive system
Content	•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 •recognise that environments can change and that this can sometimes pose dangers to living things	•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 •identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery	•identify how sounds are made, associating some of them with something vibrating •recognise that vibrations from sounds travel through a medium to the ear •find patterns between the pitch of a sound and features of the object that produced it •recognise that sounds get fainter as the distance from the sound source increases		•compare and group materials together, according to whether they are solids, liquids or gases •observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) •identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	•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 •construct and interpret a variety of food chains, identifying producers, predators and prey

Aldwyn Primary School – Year 4 Science Overview

Content		•recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit •recognise some common conductors and insulators, and associate metals with being good conductors				

Aldwyn Primary School – Year 4 Science Overview

Activities	•Use the local environment throughout the year to raise and answer questions that help them to identify and study plants and animals in their habitat •identify how the habitat changes throughout the year •explore possible ways of grouping a wide selection of living things that include animals and flowering plants and non- flowering plants	•construct simple series circuits, trying different components, for example, bulbs, buzzers and motors, and including switches, and use their circuits to create simple devices •draw the circuit as a pictorial representation, not necessarily using conventional circuit symbols at this stage; these will be introduced in year 6 (Pupils might use the terms current and voltage, but these should not be introduced or defined formally at this stage) •Learn electrical safety	•explore and identify the way sound is made through vibration in a range of different musical instruments from around the world •find out how the pitch and volume of sounds can be changed in a variety of ways		•explore a variety of everyday materials and develop simple descriptions of the states of matter (solids hold their shape; liquids form a pool not a pile; gases escape from an unsealed container) •Note: Teachers should avoid using materials where heating is associated with chemical change, for example, through baking or burning •observe water as a solid, a liquid and a gas and note the changes to water when it is heated or cooled	•be introduced to the main body parts associated with the digestive system, for example, mouth, tongue, teeth, oesophagus, stomach and small and large intestine and explore questions that help them to understand their special functions

Aldwyn Primary School – Year 4 Science Overview

Activities	•Note: Plants can be grouped into categories such as flowering plants (including grasses) and non-flowering plants, such as ferns and mosses •begin to put vertebrate animals into groups such as fish, amphibians, reptiles, birds, and mammals; and invertebrates into snails and slugs, worms, spiders, and insects •explore examples of human impact (both positive and negative) on environments, for example, the positive effects of nature reserves, ecologically planned parks, or garden ponds, and the negative effects of population and development, litter or deforestation					

Aldwyn Primary School – Year 4 Science Overview

Vocabulary	Classification vertebrates invertebrates specimen characteristics	circuit, buzzers, conductor, battery, cells, switch, socket, appliance, series, circuit, insulator	vibrating, pitch, volume, insulation, outer/middle/inner ear, cochlea, auditory, frequency, hammer		water vapour, condensation, precipitation, evaporation, substance, matter, lava, solid, liquid, gas	pancreas, oesophagus, intestine, organ, molars, canine, food chain, predators, prey, salivary gland
Working Scientifically	•Record observations in a table •Write a report •Present work scientifically Identifying and classifying: Can we use the classification keys to identify all these animals?	•asking relevant questions and using different types of scientific enquiries to answer them •setting up simple practical enquiries, comparative and fair tests •using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions Comparative testing: Which metal is the best conductor of electricity? Research: How has electricity changed the way we live?	•identify how sounds are made, associating some of them with something vibrating •recognise that vibrations from sounds travel through a medium to the ear •find patterns between the pitch of a sound and features of the object that produced it •find patterns between the volume of a sound and the strength of the vibrations that produced it •recognise that sounds get fainter as the distance from the sound source increases		•making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers •identifying differences, similarities or changes related to simple scientific ideas and processes •using straightforward scientific evidence to answer questions or to support their findings. Pattern seeking: Is there a pattern in how long it takes different sized ice lollies to melt?	•reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions •asking relevant questions and using different types of scientific enquiries to answer them Observing over time: How does an egg shell change when it is left in cola? Identifying and classifying: How can we organise teeth into groups?

Aldwyn Primary School – Year 4 Science Overview

Assessment	TAPs-Local environment study	TAPs- Does it conduct electricity?	TAPs-String telephones		TAPs-Measuring temperature	TAPs- Egg shell in different - liquids investigation
Enrichment	Mini beast hunt. Explore habitats in the local environment	Electricity fun day – static challenge	Visit to MOSI		Reversible and irreversible cooking day	We are what we eat! Make a model of the digestive system and give it some food.
Prior Learning	EYFS •Comments and questions about the place they live or the natural world •Shows care and concern for living things and the environment •Can talk about things they have observed such as plants and animals •Notices features of objects in their environment •Comments and asks questions about their familiar world	EYFS •May have some understanding that objects need electricity to work •May understand that a switch will turn something on or off	Year 1 •May have some understanding that objects make different sounds •Some understanding that they use their ears to hear sounds •Know about their different senses		Year 1 •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	EYFS •be able to identify different parts of their body •Have some understanding of healthy food and the need for variety in their diets •Be able to show care and concern for living things •Know the effects exercise has on their bodies •Have some understanding of growth and change

Aldwyn Primary School – Year 4 Science Overview

Prior Learning	Year 2 •Explore and compare the differences between things that 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 their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food				Year 2 •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	•Can talk about things they have observed including animals. Year 1 •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. Year 2 •Know that animals, including humans, have offspring which grow into adults •Know the basic stages in a life cycle for animals, including humans •Find out 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

Aldwyn Primary School – Year 4 Science Overview

						different types of food, and hygiene Year 3 •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 •Identify that humans and some other animals have skeletons and muscles for support, protection and movement

Aldwyn Primary School – Year 4 Science Overview

Future Learning	Year 5 •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 Year 6 •To describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. Give reasons for classifying plants and animals based on specific characteristics	Year 6 •Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. Use recognised symbols when representing a simple circuit in a diagram	KS3 children will learn about: •frequencies of sound waves, measured in hertz (Hz); echoes, reflection and absorption of sound •sound needs a medium to travel, the speed of sound in air, in water, in solids •sound produced by vibrations of objects, in loud speakers, detected by their effects on microphone diaphragm and the ear drum; sound waves are longitudinal •auditory range of humans and animals		Year 5 •Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. Demonstrate that dissolving, mixing and changes of state are reversible changes. Explain that some changes result in the formation of new	Year 5 •Describe the changes as humans develop to old age •Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood Year 6 •Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function •Describe the ways in which nutrients and water are transported within animals, including humans

Aldwyn Primary School – Year 4 Science Overview

					materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda	