



Science Overview - Year 4

Year Group	4	Term	Autumn 1	Topic title	Sound
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Specific Learning Objectives	Links to prior learning
- 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	This is the first topic where sound is introduced. There is no prior learning.
Notes and Guidance (non-statutory)	Links to future learning
Pupils should explore and identify the way sound is made through vibration in a range of different musical instruments from around the world; and find out how the pitch and volume of sounds can be changed in a variety of ways. Pupils might work scientifically by: finding patterns in the sounds that are made by different objects such as saucepan lids of different sizes or elastic bands of different thicknesses. They might make earmuffs from a variety of different materials to investigate which provides the best insulation against sound. They could make and play their own instruments by using what they have found out about pitch and volume.	Secondary school Physics
Working Scientifically Objectives	Links to Reading texts
- Asking relevant questions and using different types of scientific enquiries to answer them - Setting up simple practical enquiries, comparative and fair tests - Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units,	Sounds All Around (Year 3 Summer Term 2) Little Echo (Year 3 Summer Term 2) Sound Waves (Year 3 Summer Term 2)



Science Overview - Year 4

using a range of equipment, including thermometers and data loggers

- Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions



Science Overview - Year 4

Year Group	4	Term	Autumn 2	Topic title	Electricity
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Specific Learning Objectives	Links to prior learning
- 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 - 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	This is the first topic where electricity is introduced. There is no prior learning.
Notes and Guidance (non-statutory)	Links to future learning
Pupils should construct simple series circuits, trying different components, for example, bulbs, buzzers and motors, and including switches, and use their circuits to create simple devices. Pupils should draw the circuit as a pictorial representation, not necessarily using conventional circuit symbols at this stage; these will be introduced in year 6. Note: Pupils might use the terms current and voltage, but these should not be introduced or defined formally at this stage. Pupils should be taught about precautions for working safely with electricity. Pupils might work scientifically by: observing patterns, for example, that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit.	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 compartments 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.
Working Scientifically Objectives	Links to Reading texts
- Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions - Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	The History of Electricity Thomas Edison



Science Overview - Year 4

- Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions



Science Overview - Year 4

Year Group	4	Term	Spring 1	Topic title	Animals, including humans
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Specific Learning Objectives	Links to prior learning
- 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	Year 2: 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. 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.
Notes and Guidance (non-statutory)	Links to future learning
Pupils should 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. Pupils might work scientifically by: comparing the teeth of carnivores and herbivores, and suggesting reasons for differences; finding out what damages teeth and how to look after them. They might draw and discuss their ideas about the digestive system and compare them with models or images.	Year 5: Describe the changes as humans develop to old age. This is covered during PRHE lessons. NB. The objective linked to teeth is covered in Y4 PRHE lessons during the summer term
Working Scientifically Objectives	Links to Reading texts
- Setting up simple practical enquiries, comparative and fair tests - Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables - Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions - Using straightforward scientific evidence to answer questions or to support their findings.	Tooth by Tooth: Comparing Fangs, Tusks and Chompers Teeth



Science Overview - Year 4

Year Group	4	Term	Spring 2	Topic title	Living things and their habitats
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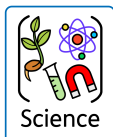
Specific Learning Objectives	Links to prior learning
- Recognise that living things can be grouped in a variety of ways - Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment - Recognise that environments can change and that this can sometimes pose dangers to living things	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 micro-habitats; 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.
Notes and Guidance (non-statutory)	Links to future learning
Pupils should 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. They should identify how the habitat changes throughout the year. Pupils should explore possible ways of grouping a wide selection of living things that include animals and flowering plants and non-flowering plants. Pupils could 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. Note: Plants can be grouped into categories such as flowering plants (including grasses) and non-flowering plants, such as ferns and mosses. Pupils should 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. Pupils might work scientifically by: using and making simple guides or keys to explore and identify local plants and animals; making a guide to local living things; raising and answering questions based on their observations of animals and what they have found out about other animals that they have researched.	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.
Working Scientifically Objectives	Links to Reading texts



Science Overview - Year 4

- Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- Identifying differences, similarities or changes related to simple scientific ideas and processes
- Using straightforward scientific evidence to answer questions or to support their findings

- [Unusual Adaptations to Habitats](#)
- [Food Chain](#)
- [The Brilliant Deep: Rebuilding the World's Corals](#)
- [Climate Change](#) (Year 3)



Science Overview - Year 4

Year Group	4	Term	Summer 1	Topic title	States of matter
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Specific Learning Objectives	Links to prior learning
- 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	Year 2 - Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock 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.
Notes and Guidance (non-statutory)	Links to future learning
Pupils should 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). Pupils should observe water as a solid, a liquid and a gas and should note the changes to water when it is heated or cooled. Note: Teachers should avoid using materials where heating is associated with chemical change, for example, through baking or burning. Pupils might work scientifically by: grouping and classifying a variety of different materials; exploring the effect of temperature on substances such as chocolate, butter, cream (for example, to make food such as chocolate crispy cakes and ice-cream for a party). They could research the temperature at which materials change state, for example, when iron melts or when oxygen condenses into a liquid. They might observe and record evaporation over a period of time, for example, a puddle in the playground or washing on a line, and investigate the effect of temperature on washing drying or snowmen melting.	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 and explain how a material dissolves to form a solution. Know and show how to recover a substance from a solution. Know and demonstrate how some materials can be separated (e.g. through filtering, sieving and evaporating). Know and demonstrate that some changes are reversible and some are not. Know how some changes result in the formation of a new material and that this is usually irreversible
Working Scientifically Objectives	Links to Reading texts
- Setting up simple practical enquiries, comparative and fair tests - Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units,	The Rhythm of the Rain Plasma What's the Matter?



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