


Year 4 Science Curriculum

	Autumn	
Curriculum focus/links	States of Matter	Animals Including Humans
Scientist/Inventor Study	Steven Hawking: theoretical physicist who studied the universe as a whole including the properties of black holes.	
Key Vocabulary	<p>States of matter: solids, liquids, gases, particles.</p> <p>State change: evaporate, condense, melt, freeze, heat, cool, melting point, freezing point, boiling point, water vapour.</p> <p>Water cycle: precipitation, evaporation, condensation, ground run-off, collection, underground water, bodies of water (sea, river, stream), water droplets, hail.</p> <p>Other: atmosphere.</p> <p>Previously introduced vocabulary: temperature, rain, cloud, snow, wind, sun, hot, cold, absorb, carbon dioxide.</p>	<p>Digestive system: digest, digestion, tongue, teeth, saliva, salivary glands, oesophagus, stomach, liver, pancreas, gallbladder, small intestine, duodenum, large intestine, rectum, anus, faeces, organ.</p> <p>Types of teeth and dental care: molar, premolar, incisor, canine, wisdom teeth, tooth decay, plaque, enamel, baby (milk) teeth.</p> <p>Food chains and animal diets: decomposer, food web.</p> <p>Previously introduced vocabulary: producer, consumer, prey, predator, excretion, habitat.</p>
Substantive Concepts	<ul style="list-style-type: none"> •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. 	<ul style="list-style-type: none"> •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.
Scientific Enquiry	<p>Plan start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions, e.g. recognising when a fair test is necessary help decide what observations or measurements they might make, how long they will make them for and the equipment they might use help decide how to record and analyse data</p> <p>Do make systematic and careful observations take accurate measurements using standard units use a range of equipment, including thermometers and data loggers set up and carry out enquiries that involve observing over time use secondary sources for researching answers to questions, recognising</p>	<p>Plan help decide what observations or measurements they might make, how long they will make them for and the equipment they might use</p> <p>Do take make systematic and careful observations accurate measurements using standard units use a range of equipment, including thermometers and data loggers set up and carry out enquiries that involve observing over time use secondary sources for researching answers to questions, recognising how this allows them to answer questions that cannot be answered through practical investigations set up and carry out simple comparative and fair tests identify, group and classify things, using simple keys when appropriate</p>

Year 4 Science Curriculum

how this allows them to answer questions that cannot be answered through practical investigations
set up and carry out simple comparative and fair tests
talk about criteria for identifying, grouping and classifying
identify, group and classify things, using simple keys when appropriate

Record

gather, record and present observations in a variety of ways to help answer questions, e.g. written recordings using simple scientific language, drawings, labelled diagrams or tables
gather, record and present measurements in a variety of ways to help answer questions, e.g. tables and bar charts
gather, record and present findings from their research (such as from secondary sources) in a variety of ways, e.g. fact files, answers to questions or giving explanations
record classification tasks in a variety of ways to help answer questions, e.g. simple keys, tables or Venn diagrams

use and apply mathematical skills at a level consistent with their increasing maths knowledge at lower key stage 2

Review

with support, identify changes, patterns, and similarities and differences, e.g. in their data, observations or from research of scientific ideas, to help answer questions and draw conclusions
use straightforward scientific evidence (from observations, measurements or secondary sources) to answer questions or support their conclusions
raise further questions which could be investigated
suggest improvements to investigations
use, read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge
report and present their results and conclusions to different audiences in written and oral forms with increasing confidence


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gather, record and present observations in a variety of ways to help answer questions, e.g. written recordings using simple scientific language, drawings, labelled diagrams or tables
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Year 4 Science Curriculum

	Spring	
Curriculum focus/links	Sound	Electricity
Scientist / Inventor Study	Alexander Graham Bell: Inventor of many communication devices and methods including the telephone.	Garrett Morgan: inventor of traffic control technology, including traffic lights.
Key Vocabulary	<p>Parts of the ear: eardrum.</p> <p>Making sound: vibration, vocal cords, particles.</p> <p>Measuring sound: pitch, volume, amplitude, sound wave, quiet, loud, high, low, travel, distance.</p> <p>Other: soundproof, absorb sound.</p>	<p>Electricity: mains-powered, battery-powered, mains electricity, plug, appliances, devices.</p> <p>Circuits: circuit, simple series circuit, complete circuit, incomplete circuit.</p> <p>Circuit parts: bulb, cell, wire, buzzer, switch, motor, battery.</p> <p>Materials: electrical conductor, electrical insulator. Other: safety.</p> <p>Previously introduced vocabulary: names of materials.</p>
Substantive Concepts	<ul style="list-style-type: none"> •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. 	<ul style="list-style-type: none"> •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.
Scientific Enquiry	<p>Plan use their scientific experiences to raise questions about the world around them</p> <p>Do make systematic and careful observations take accurate measurements using standard units use a range of equipment, including thermometers and data loggers use secondary sources for researching answers to questions, recognising how this allows them to answer questions that cannot be answered through practical investigations set up and carry out simple comparative and fair tests set up and carry out pattern seeking enquiries</p>	<p>Plan use their scientific experiences to raise questions about the world around them</p> <p>Do make systematic and careful observations use a range of equipment, including thermometers and data loggers use secondary sources for researching answers to questions, recognising how this allows them to answer questions that cannot be answered through practical investigations set up and carry out simple comparative and fair tests talk about criteria for identifying, grouping and classifying identify, group and classify things, using simple keys when appropriate</p>

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Record

gather, record and present observations in a variety of ways to help answer questions, e.g. written recordings using simple scientific language, drawings, labelled diagrams or tables

gather, record and present measurements in a variety of ways to help answer questions, e.g. tables and bar charts

gather, record and present findings from their research (such as from secondary sources) in a variety of ways, e.g. fact files, answers to questions or giving explanations

use and apply mathematical skills at a level consistent with their increasing maths knowledge at lower key stage 2

Review

with support, identify changes, patterns, and similarities and differences, e.g. in their data, observations or from research of scientific ideas, to help answer questions and draw conclusions

use straightforward scientific evidence (from observations, measurements or secondary sources) to answer questions or support their conclusions

use, read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge

report and present their results and conclusions to different audiences in written and oral forms with increasing confidence

Record

gather, record and present observations in a variety of ways to help answer questions, e.g. written recordings using simple scientific language, drawings, labelled diagrams or tables

gather, record and present findings from their research (such as from secondary sources) in a variety of ways, e.g. fact files, answers to questions or giving explanations

record classification tasks in a variety of ways to help answer questions, e.g. simple keys, tables or Venn diagrams

Review

with support, identify changes, patterns, and similarities and differences, e.g. in their data, observations or from research of scientific ideas, to help answer questions and draw conclusions


use straightforward scientific evidence (from observations, measurements or secondary sources) to answer questions or support their conclusions

make predictions for new values

use, read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge

report and present their results and conclusions to different audiences in written and oral forms with increasing confidence

Year 4 Science Curriculum

	Summer
Curriculum focus/links	Living Things In Their Habitats
Key Vocabulary	<p>Living things: organisms, specimen, species.</p> <p>Grouping living things: classification, classification keys, classify, characteristics.</p> <p>Names of invertebrate animals: snails and slugs, worms, spiders, insects.</p> <p>Invertebrate body parts: e.g. wing case, abdomen, thorax, antenna, segments, mandible, proboscis, prolegs.</p> <p>Environmental changes: environment, environmental dangers, adapt, natural changes, climate change, deforestation, pollution, urbanisation, invasive species, endangered species, extinct.</p> <p>Previously introduced vocabulary: carbon dioxide, fish, bird, mammal, amphibian, reptile, skeleton, bone, vertebrate, invertebrate, backbone, names for animal body parts, names of common plants, photosynthesis.</p>
Substantive Concepts	<ul style="list-style-type: none"> •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.
Scientific Enquiry	<p>Plan use their scientific experiences to raise questions about the world around them</p> <p>Do make systematic and careful observations</p> <p>use a range of equipment, including thermometers and data loggers use secondary sources for researching answers to questions, recognising how this allows them to answer questions that cannot be answered through practical investigations talk about criteria for identifying, grouping and classifying identify, group and classify things, using simple keys when appropriate</p> <p>Record gather, record and present observations in a variety of ways to help answer questions, e.g. written recordings using simple scientific language, drawings, labelled diagrams or tables gather, record and present findings from their research (such as from secondary sources) in a variety of ways, e.g. fact files, answers to questions or giving explanations record classification tasks in a variety of ways to help answer questions, e.g. simple keys, tables or Venn diagrams</p> <p>Review with support, identify changes, patterns, and similarities and differences, e.g. in their data, observations or from research of scientific ideas, to help answer questions and draw conclusions use straightforward scientific evidence (from observations, measurements or secondary sources) to answer questions or support their conclusions use, read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge report and present their results and conclusions to different audiences in written and oral forms with increasing confidence</p>