Science Curriculum Map Years 5 & 6

Year 6

Explain how nutrients and water are transported within humans and animals

Recognise and describe the damaging impact some drugs and other substances can have on the human body

Identify the major parts of the human circulatory system and their functions

Describe how lifestyle is important for the health of the human circulatory system , contributing towards a class policy on exercise and diet choices

Blood heart

Animals, including humans

Footprint

Match offspring to their parents, linked to observable features and characteristics

Describe how variation in living things leads to the evolution of a species, studying Darwin's theories

Identify how specific plants or animals have adapted to their environment

Explain how fossils are formed and how fossil discoveries have helped develop the theory of evolution

Darwin's Delights

Evolution and Inheritance

Discovery

Compare native with non-native plants and determine whether non-native plants can be classified in the same was as native plants

Research and describe similarities and differences between petals, leaves, stamen, and stigma on a variety of plants found locally and elsewhere

Devise classification keys to identify plants in the Immediate environment. Give reasons for classification and understand significance of scientists' work, from study

Frozen Kingdom

Plants (Animals)

Discovery

Predict materials that could be good conductors of electricity and conduct a fair test to show this

Describe how animals must be adapted to their habitats for survival, using a range of animals for examples

Recognise the importance of the classification system and its inception, giving reasons for how the groups and subgroups are chosen

Describe the relationship between the number or voltage of a cell /cells and the affect it has on a bulb or buzzer for example

Work scientifically to construct a series circuit for a specific device or outcome and explain how it works

Draw a series circuit using conventional symbols and demonstrate how to work safely with electrical circuits

Identify and name components of a circuit and define terms, such as voltage and current in relation to series circuits

(After A Child's War)

Electricity

Identify parts of the eye and draw a diagram showing how light enters our eyes in order to see , using correct vocabulary

Describe how white light can be split using prisms and droplets of water and what colours white light is made from

Compare how a beam of light changes direction (refraction) when passing through different mediums, such as water and air

Classify a range of objects or surfaces for their reflective qualities using scientific testing

(After revolution)

Light

Explain how light behaves and travels in straight lines. Demonstrate, using a model or diagram, how this explains why we can see objects and how shadows are formed

Describe what a moon is, how they maintain an orbit around a planet and which planets in our solar system have them

Stargazers

Earth and Space

Discovery

Draw the life cycle of an insect, an amphibian, a bird and a mammal, highlighting the key differences and similarities

Explain how Earth's 'position' affects day length

Explain day and night using the Earth's rotation, correct terminology and a model if required

Beast Creator

Living things and their habitats

Identify and present in an appropriate way, the key stages in human growth and development from birth to old age

Describe the process of sexual reproduction in a familiar animal and why it is important for species survival

Demonstrate, using a model, how simple levers, gears and pulleys assist the movement of objects using less force

Identify and define the opposing forces that act upon objects moving through air, water or along a surface

Describe the force of gravity, what causes it and how the force of gravity changes e.g. on different planets. Use study skills to research the work of scientists such as Newton

Describe comprehensively some familiar and unfamiliar material's physical properties, including transparency, conductivity, solubility and magnetism.

(After Wombourne)

Properties and changes of materials

Year 5

Scream Machine

Forces

Provide evidence and reasons why a material has been chosen for a specific use. Scientifically and systematically compare the functionality of a range of materials to perform a specific function

Classify and group mixtures for how they can be separated, including sieving, filtering, evaporating

Identify a wide range of reversible and irreversible changes that are in use in everyday life

Upper key stage 2 programme of study

Working scientifically

During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- using test results to make predictions to set up further comparative and fair tests
- reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations
- identifying scientific evidence that has been used to support or refute ideas or arguments

Notes and guidance (non-statutory)

Pupils in years 5 and 6 should use their science experiences to: explore ideas and raise different kinds of questions; select and plan the most appropriate type of scientific enquiry to use to answer scientific questions; recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why. They should use and develop keys and other information records to identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment.

They should make their own decisions about what observations to make, what measurements to use and how long to make them for, and whether to repeat them; choose the most appropriate equipment to make measurements and explain how to use it accurately. They should decide how to record data from a choice of familiar approaches; look for different causal relationships in their data and identify evidence that refutes or supports their ideas. They should use their results to identify when further tests and observations might be needed; recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact.

They should use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and should talk about how scientific ideas have developed over time.

These opportunities for working scientifically should be provided across years 5 and 6 so that the expectations in the programme of study can be met by the end of year 6. Pupils are not expected to cover each aspect for every area of study.

Asking Questions	Observing and measuring
Planning and setting up different types of enquiries	Identifying and classifying
Performing tests	Gathering and recording data
Using equipment	Reporting, presenting and communicating data/findings

Use their science experiences to explore ideas and raise different kinds of questions	I ask different kinds of questions
Recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations	I ask my own questions—I use different ways to answer them
Make their own decisions about what observations to make, what measurements to use and how long to make them for	I use different scientific equipment to measure with precision. I take repeat readings when appropriate
Look for different causal relationships in their data and identify evidence that refutes or supports their ideas	I decide what observations and measurements to make
Talk about how scientific ideas have developed over time	I plan different types of enquiries to answer questions
Select and plan the most appropriate type of scientific enquiry to use to answer scientific questions	I plan different types of enquiries to answer questions
Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why	I can set up fair tests when necessary
Choose the most appropriate equipment to make measurements with increasing precision and explain how to use it accurately. Take repeat measurements where appropriate.	I use different scientific equipment to measure with precision. I take repeat readings when appropriate
Use and develop keys and other information records to identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment	I decide how to record data and results. I can use scientific diagrams, labels, classification, keys, tables, scatter, bar and line graphs
Decide how to record data and results of increasing complexity from a choice of familiar approaches: scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	I decide how to record data and results. I can use scientific diagrams, labels, classification, keys, table, scatter, bar and line graphs
Identify scientific evidence that has been used to support or refute ideas or arguments	I report and present findings using speaking and writing including displays and presentations
Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas, use oral and written forms such as displays and other presentations to report conclusions, causal relationships and explanations of degree of trust in results	I use relevant scientific language and illustrations
Use their results to make predictions and identify when further observations, comparative and fair tests might be needed	I use results to make predictions and set up more tests (including fair tests)