



LCC Curriculum Content – Year 5 and 6

Cycle A every 2 years from 2013/14

Science	Geography	History
<p><u>Working scientifically</u></p> <p>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:</p> <ul style="list-style-type: none"> 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 	<p><u>On-going provision for geographical knowledge acquisition</u></p> <ul style="list-style-type: none"> locate the world’s countries, using maps to focus on Europe and North and South America and concentrating on their environmental regions, key physical and human characteristics, countries, and major cities name and locate counties and cities of the United Kingdom, geographical regions and their identifying human and physical characteristics, including hills, mountains, cities, rivers, key topographical features and land-use patterns; and understand how some of these aspects have changed over time identify the position and significance of latitude, longitude, Equator, Northern Hemisphere, Southern Hemisphere, the 	<p><u>Britain’s Settlement by Anglo-Saxons and Scots</u></p> <p><u>The Viking and Anglo-Saxon struggle for the Kingdom of England to the time of Edward the Confessor</u></p> <p>See Notes and Guidance Cycle A (vi)</p>

relationships and explanations of and 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.

Light (Y3)

Pupils should be taught to:

- recognise that they need light in order to see things and that dark is the absence of light
- notice that light is reflected from surfaces
- recognise that light from the sun can be dangerous and that there are ways to protect their eyes
- recognise that shadows are formed when the light from a light source is blocked by a solid object
- find patterns in the way that the size of shadows change.

* See Notes and Guidance Cycle A (i)

Tropics of Cancer and Capricorn, Arctic and Antarctic Circle, and time zones (including day and night)

- use maps, atlases, globes and digital/computer mapping to locate countries and describe features studied
- use the eight points of a compass, four-figure grid references, symbols and key (including the use of Ordnance Survey maps) to build their knowledge of the United Kingdom and the wider world

Sustainability, Ethical Trading and Environmental Impact

- human geography, including: settlements, land use, economic activity including trade links, and the distribution of natural resources including energy, food, minerals, and water supplies
- understand geographical similarities and differences through the study of human and physical geography of a region or area of the United Kingdom (different from that taught at Key Stage 1), a region or area in a European country, and a region or area within North or South America
- use maps, atlases, globes and digital/computer mapping to locate

Light (Y6)

Pupils should be taught to:

- recognise that light appears to travel in straight lines
- 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
- explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes
- use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.

See Notes and Guidance Cycle A (ii)

countries and describe features studied

Earth and space (Y5)

Pupils should be taught to:

- describe the movement of the Earth, and other planets, relative to the Sun in the solar system
describe the movement of the Moon relative to the Earth
- describe the Sun, Earth and Moon as approximately spherical bodies
- use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.

See Notes and Guidance Cycle A (iii)

Properties and changes of materials – Y5

Pupils should be taught to:

- 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 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.

See Notes and Guidance Cycle A (iv)

Evolution and inheritance (Y6)

See Notes and Guidance Cycle A (v)

Pupils should be taught to:

- recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago
- recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents
- identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

LCC Curriculum Content – Year5 and 6

Cycle B every 2 years from 2014/15

Science	Geography	History
<p><u>Working scientifically</u></p> <p>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:</p> <ul style="list-style-type: none"> • 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 degree of trust in results, in oral and 	<p><u>On-going provision for geographical knowledge acquisition</u></p> <ul style="list-style-type: none"> • locate the world’s countries, using maps to focus on Europe and North and South America and concentrating on their environmental regions, key physical and human characteristics, countries, and major cities • name and locate counties and cities of the United Kingdom, geographical regions and their identifying human and physical characteristics, including hills, mountains, cities, rivers, key topographical features and land-use patterns; and understand how some of these aspects have changed over time • identify the position and significance of latitude, longitude, Equator, Northern Hemisphere, Southern Hemisphere, the Tropics of Cancer and Capricorn, Arctic and Antarctic Circle, and time zones (including 	<p><u>Ancient Greece</u></p> <p>A study of Greek life and achievements and their influence on the western world</p>

written forms such as displays and other presentations

- identifying scientific evidence that has been used to support or refute ideas or arguments.

Living Things and their habitats (Y5)

Pupils should be taught to

- 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.

Living Things and their habitats (Y6)

Pupils should be taught to:

- describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals give reasons for classifying plants and animals based on specific characteristics

See Notes and Guidance Cycle B (i) (ii)

Animals, including humans (Y5)

day and night)

- use maps, atlases, globes and digital/computer mapping to locate countries and describe features studied
- use the eight points of a compass, four-figure grid references, symbols and key (including the use of Ordnance Survey maps) to build their knowledge of the United Kingdom and the wider world

Local Geography and History Comparative Study

- understand geographical similarities and differences through the study of human and physical geography of a region or area of the United Kingdom (different from that taught at Key Stage 1), a region *or area in a European country*, and a region or area within North or South America e.g. Holland linked to draining of the Fens.
- human geography, including: settlements, land use, economic activity including trade links, and the distribution of natural resources including energy, food, minerals, and water supplies
- name and locate counties and cities of the

Pupils should be taught to:

- describe the changes as humans develop to old age

Animals, including humans (Y6)

Pupils should be taught to:

- identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood
- 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

*See Notes and Guidance Cycle B (iv) (v)

Electricity (Y4)

Pupils should be taught to:

- identify common appliances that run on electricity
- construct a simple series electrical circuit,

United Kingdom, geographical regions and their identifying human and physical characteristics, including hills, mountains, cities, rivers, key topographical features and land-use patterns; and understand how some of these aspects have changed over time

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.
-

Electricity (Y6)

Pupils should be taught to:

- 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.

* See Notes and Guidance Cycle B (iv) (v)

Notes and Guidance Cycle A

Non-statutory Guidance

- i. **Light** - Pupils should explore what happens when light reflects off a mirror or other reflective surfaces, including playing mirror games to help them to answer questions about how light behaves. They should think about why it is important to protect their eyes from bright lights. They should look for, and measure, shadows, and find out how they are formed and what might cause the shadows to change. Note: Pupils should be warned that it is not safe to look directly at the Sun, even when wearing dark glasses. Pupils might work scientifically by: looking for patterns in what happens to shadows when the light source moves or the distance between the light source and the object changes.
- ii. **Light** - Pupils should build on the work on light in year 3, exploring the way that light behaves, including light sources, reflection and shadows. They should talk about what happens and make predictions. Pupils might work scientifically by: deciding where to place rear-view mirrors on cars; designing and making a periscope and using the idea that light appears to travel in straight lines to explain how it works. They might investigate the relationship between light sources, objects and shadows by using shadow puppets. They could extend their experience of light by looking a range of phenomena including rainbows, colours on soap bubbles, objects looking bent in water and coloured filters (they do not need to explain why these phenomena occur).
- iii. **Earth and Space** - Pupils should be introduced to a model of the Sun and Earth that enables them to explain day and night. Pupils should learn that the Sun is a star at the centre of our solar system and that it has eight planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune (Pluto was reclassified as a 'dwarf planet' in 2006). They should understand that a moon is a celestial body that orbits a planet (Earth has one moon; Jupiter has four large moons and numerous smaller ones). Note: Pupils should be warned that it is not safe to look directly at the Sun, even when wearing dark glasses. Pupils should find out about the

way that ideas about the solar system have developed, understanding how the geocentric model of the solar system gave way to the heliocentric model by considering the work of scientists such as Ptolemy, Alhazen and Copernicus.

Pupils might work scientifically by: comparing the time of day at different places on the Earth through internet links and direct communication; creating simple models of the solar system; constructing simple shadow clocks and sundials, calibrated to show midday and the start and end of the school day; finding out why some people think that structures such as Stonehenge might have been used as astronomical clocks.

- iv. **Properties and changes of materials** - Pupils should build a more systematic understanding of materials by exploring and comparing the properties of a broad range of materials, including relating these to what they learnt about magnetism in year 3 and about electricity in year 4. They should explore reversible changes, including, evaporating, filtering, sieving, melting and dissolving, recognising that melting and dissolving are different processes. Pupils should explore changes that are difficult to reverse, for example, burning, rusting and other reactions, for example, vinegar with bicarbonate of soda. They should find out about how chemists create new materials, for example, Spencer Silver, who invented the glue for sticky notes or Ruth Benerito, who invented wrinkle-free cotton. Note: Pupils are not required to make quantitative measurements about conductivity and insulation at this stage. It is sufficient for them to observe that some conductors will produce a brighter bulb in a circuit than others and that some materials will feel hotter than others when a heat source is placed against them. Safety guidelines should be followed when burning materials. Pupils might work scientifically by: carrying out tests to answer questions, for example, 'Which materials would be the most effective for making a warm jacket, for wrapping ice cream to stop it melting, or for making blackout curtains?' They might compare materials in order to make a switch in a circuit. They could observe and compare the changes that take place, for example, when burning different materials or baking bread or cakes. They might research and discuss how chemical changes have an impact on our lives, for example, cooking, and discuss the creative use of new materials such as polymers, super-sticky and super-thin materials.

- v. **Evolution and Inheritance-** Building on what they learned about fossils in the topic on rocks in year 3, pupils should find out more about how living things on earth have changed over time. They should be introduced to the idea that characteristics are passed from parents to their offspring, for instance by considering different breeds of dogs, and what happens when, for example, labradors are crossed with poodles. They should also appreciate that variation in offspring over time can make animals more or less able to survive in particular environments, for example, by exploring how giraffes' necks got longer, or the development of insulating fur on the arctic fox. Pupils might find out about the work of palaeontologists such as Mary Anning and about how Charles Darwin and Alfred Wallace developed their ideas on evolution. Note: At this stage, pupils are not expected to understand how genes and chromosomes work. Pupils might work scientifically by: observing and raising questions about local animals and how they are adapted to their environment; comparing how some living things are adapted to survive in extreme conditions, for example, cactuses, penguins and camels. They might analyse the advantages and disadvantages of specific adaptations, such as being on two feet rather than four, having a long or a short beak, having gills or lungs, tendrils on climbing plants, brightly coloured and scented flowers.
- vi. **Britain's Settlement by Anglo-Saxons and Scots;** The Invaders; Anglo-Saxon, Vikings and Normans: What did they bring and what did we lose?

Notes and Guidance Cycle B

Non-statutory Guidance

- i) Living things and their habitats** - Pupils should study and raise questions about their local environment throughout the year. They should observe life-cycle changes in a variety of living things, for example, plants in the vegetable garden or flower border, and animals in the local environment. They should find out about the work of naturalists and animal behaviourists, for example, David Attenborough and Jane Goodall. Pupils should find out about different types of reproduction, including sexual and asexual reproduction in plants, and sexual reproduction in animals. Pupils might work scientifically by: observing and comparing the life cycles of plants and animals in their local environment with other plants and animals around the world (in the rainforest, in the oceans, in desert areas and in prehistoric times), asking pertinent questions and suggesting reasons for similarities and differences. They might try to grow new plants from different parts of the parent plant, for example, seeds, stem and root cuttings, tubers, bulbs. They might observe changes in an animal over a period of time (for example, by hatching and rearing chicks), comparing how different animals reproduce and grow.
- ii) Living things and their habitats** Pupils should build on their learning about grouping living things in year 4 by looking at the classification system in more detail. They should be introduced to the idea that broad groupings, such as micro-organisms, plants and animals can be subdivided. Through direct observations where possible, they should classify animals into commonly found invertebrates (such as insects, spiders, snails, worms) and vertebrates (fish, amphibians, reptiles, birds and mammals). They should discuss reasons why living things are placed in one group and not another. Pupils might find out about the significance of the work of scientists such as Carl Linnaeus, a pioneer of classification. Pupils might work scientifically by: using classification systems and keys to identify some animals and plants in the immediate environment. They could research unfamiliar animals and plants from a broad range of other habitats and decide where they belong in the classification system.

- iii) **Animals including humans** - Pupils should draw a timeline to indicate stages in the growth and development of humans. They should learn about the changes experienced in puberty. Pupils could work scientifically by researching the gestation periods of other animals and comparing them with humans; by finding out and recording the length and mass of a baby as it grows.
- iv) **Animals including humans** - Pupils should build on their learning from years 3 and 4 about the main body parts and internal organs (skeletal, muscular and digestive system) to explore and answer questions that help them to understand how the circulatory system enables the body to function. Pupils should learn how to keep their bodies healthy and how their bodies might be damaged – including how some drugs and other substances can be harmful to the human body. Pupils might work scientifically by: exploring the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health
- v) **Electricity** - 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.
- vi) **Electricity** - Building on their work in year 4, pupils should construct simple series circuits, to help them to answer questions about what happens when they try different components, for example, switches, bulbs, buzzers and motors. They should learn how to represent a simple circuit in a diagram using recognised symbols. Note: Pupils are expected to learn only about series circuits, not parallel circuits. Pupils should be taught to take the necessary precautions for working safely with

electricity. Pupils might work scientifically by: systematically identifying the effect of changing one component at a time in a circuit; designing and making a set of traffic lights, a burglar alarm or some other useful circuit.