



Coleridge Science

Medium term planning



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National Curriculum 2014

Medium term planning document

Key Stages 1&2. Years 1-6



Medium term planning for 2014 National Curriculum

Content and coverage

This document contains planning guidance for teachers, and information for parents, on coverage of the statutory objectives set out in the 2014 National Curriculum.

Under the current curriculum, the objectives for each year group fall under one of two broad headings. These are:

- Scientific knowledge and conceptual understanding
- The nature, process and methods of science (*working scientifically*).

Those objectives pertaining to *scientific knowledge and conceptual understanding* are principally concerned with developing a body of scientific knowledge in children. They cover key facts and concepts in the wider areas of biology, physics and chemistry but have been arranged into units - or *Programmes of Study* - such as *Plants, Everyday Materials, and Animal Including Humans*. These programmes of study are taught sequentially during the child's time in school and are revisited in later years to consolidate and build knowledge.

Objectives under the heading *The nature process and methods of science (or working scientifically)*, focus on developing scientific enquiry skills. They encourage children to work and to behave like scientists, developing skills such as observation, planning, hypothesising and fair testing. These objectives should be taught in context and in conjunction with all programmes of study.

Using this document

Teachers are free to deliver the programmes of study in any order they choose, so as to afford greater opportunity for cross curricular links with work taking place in other curriculum areas at this time. For the purpose of medium term planning, teachers are expected to record the dates of coverage in the boxes provided. More detailed planning and overviews can be found in the yearly planning maps for each year group and in the science schemes of works.



Year 1 Medium Term Planning

Scientific knowledge and conceptual understanding

Topic Area	Previous Coverage	Curriculum Objectives	Resources
Plants	New	<ul style="list-style-type: none">identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.identify and describe the basic structure of a variety of common flowering plants, including trees.	
Animals including humans	New	<ul style="list-style-type: none">identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammalsidentify and name a variety of common animals that are carnivores, herbivores and omnivoresdescribe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	
Everyday Materials	New	<ul style="list-style-type: none">distinguish between an object and the material from which it is madeidentify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rockdescribe the simple physical properties of a variety of everyday materialscompare and group together a variety of everyday materials on the basis of their simple physical properties.	
Seasonal Changes	New	<ul style="list-style-type: none">observe changes across the four seasonsobserve and describe weather associated with the seasons and how day length varies.	

The nature, processes and methods of science - *Working Scientifically*

- Ask simple questions and recognise that they can be answered in different ways
- Observe closely, using simple equipment
- Perform simple tests
- Identify and classify
- Use their observations and ideas to suggest answers to questions



Year 2 Medium Term Planning

Scientific knowledge and conceptual understanding

Topic Area	Previous Coverage	Curriculum Objectives	Resources
Plants	Year 1	<ul style="list-style-type: none">observe and describe how seeds and bulbs grow into mature plantsfind out and describe how plants need water, light and a suitable temperature to grow and stay healthy.	
Animals including Humans	Year 1	<ul style="list-style-type: none">notice that animals, including humans, have offspring which grow into adultsfind 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.	
Everyday Materials	Year 1	<ul style="list-style-type: none">identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular usesfind out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	
All living things and their habitats	New	<ul style="list-style-type: none">explore and compare the differences between things that are living, dead, and things that have never been aliveidentify 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 otheridentify and name a variety of plants and animals in their habitats, including micro-habitatsdescribe 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.	

The nature, processes and methods of science - *Working Scientifically*

- Ask simple questions and recognise that they can be answered in different ways
- Observe closely, using simple equipment
- Perform simple tests
- Identify and classify
- Use their observations and ideas to suggest answers to questions
- gathering and recording data to help in answering questions.



Year 3 Medium Term Planning

Scientific knowledge and conceptual understanding

Topic Area	Previous Coverage	Curriculum Objectives	Resources
Plants	Years 1,2	<ul style="list-style-type: none"> Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant investigate the way in which water is transported within plants explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. 	<p>Hamilton <small>supporting teachers</small></p> <p>Kent</p>
Animals including humans	Years 1,2	<ul style="list-style-type: none"> 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. 	<p>Hamilton <small>supporting teachers</small></p> <p>Kent</p>
Rocks	New	<ul style="list-style-type: none"> compare and group together different kinds of rocks on the basis of their appearance and simple physical properties describe in simple terms how fossils are formed when things that have lived are trapped within rock recognise that soils are made from rocks and organic matter. 	<p>Hamilton <small>supporting teachers</small></p> <p>Kent</p>
Light	New	<ul style="list-style-type: none"> 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. 	<p>Hamilton <small>supporting teachers</small></p> <p>Kent</p>
Forces and Magnets	New	<ul style="list-style-type: none"> compare how things move on different surfaces notice that some forces need contact between two objects, but magnetic forces can act at a distance observe how magnets attract or repel each other and attract some materials and not others describe magnets as having two poles predict whether two magnets will attract or repel each other, depending on which poles are facing. compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials 	<p>Hamilton <small>supporting teachers</small></p> <p>Kent</p>



Year 3 Medium Term Planning

The nature, processes and methods of science - *Working Scientifically*

- Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- Gather, record, classify and present data in a variety of ways to help in answering questions
- Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- Identifying differences, similarities or changes related to simple scientific ideas and processes
- Use straightforward scientific evidence to answer questions or to support their findings.



Year 4 Medium Term Planning

Scientific knowledge and conceptual understanding

Topic Area	Previous Coverage	Curriculum Objectives	Resources
Living things and their habitats	Year 2	<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 environment recognise that environments can change and that this can sometimes pose dangers to living things. 	<p>Hamilton <small>supporting teachers</small></p> <p>Kent</p>
Animals, including humans	Years 1,2,3	<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. 	<p>Hamilton <small>supporting teachers</small></p> <p>Kent</p>
States of matter	Years 1+2 (<i>Everyday Materials</i>)	<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. 	<p>Hamilton <small>supporting teachers</small></p> <p>Kent</p>
Sound	New	<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. 	<p>Hamilton <small>supporting teachers</small></p> <p>Kent</p>
Electricity	New	<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 link this to whether or not a lamp lights in a simple series circuit recognise some common conductors and insulators, and associate metals with being good conductors. 	<p>Hamilton <small>supporting teachers</small></p> <p>Kent</p>



Year 4 Medium Term Planning

The nature, processes and methods of science - *Working Scientifically*

- Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- Gather record, classify and present data in a variety of ways to help in answering questions
- Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- Identifying differences, similarities or changes related to simple scientific ideas and processes
- Use straightforward scientific evidence to answer questions or to support their findings.



Year 5 Medium Term Planning

Scientific knowledge and conceptual understanding

Topic Area	Previous Coverage	Curriculum Objectives	Resources
Living things and their habitats	Year 2,4	<ul style="list-style-type: none"> describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird I can describe the life process of reproduction in some plants and animals. 	<p>Hamilton <small>supporting teachers</small></p> <p>Kent</p>
Animals, including humans	Years 1,2,3,4	<ul style="list-style-type: none"> describe the changes as humans develop to old age. 	<p>Hamilton <small>supporting teachers</small></p> <p>Kent</p>
Properties and changes of materials	<p>Years 1,2 (<i>Everyday Materials</i>)</p> <p>Year 4 (<i>States of Matter</i>)</p>	<ul style="list-style-type: none"> 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. 	<p>Hamilton <small>supporting teachers</small></p> <p>Kent</p>
Earth and Space	New	<ul style="list-style-type: none"> 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. 	<p>Hamilton <small>supporting teachers</small></p> <p>Kent</p>
Forces	Year 3 (<i>Forces and Magnets</i>)	<ul style="list-style-type: none"> explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object identify the effects of air resistance, water resistance and friction, that act between moving surfaces recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. 	<p>Hamilton <small>supporting teachers</small></p> <p>Kent</p>



Year 5 Medium Term Planning

The nature, processes and methods of science - *Working Scientifically*

- Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- Take 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
- Use test results to make predictions to set up further comparative and fair tests
- Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations
- Identify scientific evidence that has been used to support or refute ideas or arguments.



Year 6 Medium Term Planning

Scientific knowledge and conceptual understanding

Topic Area	Previous Coverage	Curriculum Objectives	Resources
Living things and their habitats	Years 2,4,5	<ul style="list-style-type: none">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 animalsgive reasons for classifying plants and animals based on specific characteristics.	
Animals, including humans	Years 1,2,3,4,5	<ul style="list-style-type: none">identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and bloodrecognise the impact of diet, exercise, drugs and lifestyle on the way their bodies functiondescribe the ways in which nutrients and water are transported within animals, including humans.	
Evolution and inheritance	New	<ul style="list-style-type: none">recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years agorecognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parentsidentify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.	
Light	Year 3	<ul style="list-style-type: none">use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eyeexplain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyesuse the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.	
Electricity	Year 4	<ul style="list-style-type: none">associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuitcompare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switchesuse recognised symbols when representing a simple circuit in a diagram.	



Year 6 Medium Term Planning

The nature, processes and methods of science - *Working Scientifically*

- Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- Take 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
- Use test results to make predictions to set up further comparative and fair tests
- Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations
- Identify scientific evidence that has been used to support or refute ideas or arguments.