Bidford on Avon C. of E. Primary School Science Curriculum two year rolling programme 2019

<table>
<tr><th colspan="4">Even Years – Year 1/2</th></tr>
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<tr><td>Aspect</td><td><u>Biology</u></td><td><u>Chemistry</u></td><td><u>Biology</u></td></tr>
<tr><td rowspan="2">Theme</td><td>Y1. Animals including humans</td><td>Y1. Everyday Materials</td><td>Y2. Living Things and their Habitats</td></tr>
<tr><td colspan="3">Y1. Seasonal Changes
The four seasons/Seasonal weather
Name the seasons and know about the type of weather in each season</td></tr>
<tr><td>Coverage</td><td>Name common animals
Carnivores, etc
Human body and senses</td><td>Properties of materials
Grouping materials</td><td>Animal reproduction
Healthy living
Basic needs</td></tr>
<tr><td>Key Knowledge</td><td>Know how to classify a range of animals by amphibian, reptile, mammal, fish and birds
Know and classify animals by what they eat (carnivore, herbivore and omnivore)
Know how to sort by living and non-living things
Know the name of parts of the human body that can be seen</td><td>Know the name of the materials an object is made from
Know about the properties of everyday materials</td><td>Know the basic stages in a life cycle for animals, (including humans)
Know why exercise, a balanced diet and good hygiene are important for humans</td></tr>
<tr><td>Working Scientifically in Year 1/2</td><td colspan="2">During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:
asking simple questions and recognising that they can be answered in different ways
observing closely, using simple equipment
performing simple tests
identifying and classifying
using their observations and ideas to suggest answers to questions
gathering and recording data to help in answering questions.</td><td>Enquiry Ideas
Why do some animals eat meat and others do not?
Which materials keeps things warmest?
Why do some animals have underground habitats?
Why does it get cold in winter?
Why do most people love the spring?
Why don’t we need to wear so many clothes in summer?
Why are there so many leaves on the ground in autumn?</td></tr>
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Odd Years – Year 1/2			
Term	**Autumn**	**Spring**	**Summer**
Aspect	**Biology**	**Chemistry**	**Biology**
Theme	**Y2. Animals including humans**	**Y2. Uses of Everyday materials**	**Y1 Plants** **Y2 Plants**
	Y2. Seasonal Changes • *The four seasons/Seasonal weather* • *Name the seasons and know about the type of weather in each season*		
Coverage	• *Animal reproduction* • *Healthy living* • *Basic needs*	• *Identify different materials* • *Name everyday materials* • *Properties of materials* • *Compare the use of different materials* • *Compare movement on different surfaces*	• *Common plants* • *Plant structure* • *Plant and seed growth* • *Plant reproduction* • *Keeping plants healthy*
Key Knowledge	• *Know the basic stages in a life cycle for animals, (including humans)* • *Know why exercise, a balanced diet and good hygiene are important for humans*	• *Know how materials can be changed by squashing, bending, twisting and stretching* • *Know why a material might or might not be used for a specific job*	• *Know and name a variety of common wild and garden plants* • *Know and name the petals, stem, leaves and root of a plant* • *Know and name the roots, trunk, branches and leaves of a tree* • *Know and explain how seeds and bulbs grow into plants* • *Know what plants need in order to grow and stay healthy (water, light & suitable temperature)*
Working Scientifically in Year 1/2	**During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:** • *asking simple questions and recognising that they can be answered in different ways* • *observing closely, using simple equipment* • *performing simple tests* • *identifying and classifying* • *using their observations and ideas to suggest answers to questions* • *gathering and recording data to help in answering questions.*		**Enquiry Ideas** • *Why are flowers different colours?* • *Why do some trees lose their leaves in autumn and others do not?* • *How long are roots of tall trees?* • *How can we group deciduous and coniferous trees?* • *In what conditions do seeds grow best?* • *Which fruits grow naturally in our country?* • *What are the advantages and disadvantages of some common materials?* • *What do the seeds of different trees look like?*

Even Years - Year 3/4					
Term	**Autumn**		**Spring**	**Summer**	
Aspect	**Biology**	**Biology**	**Physics**	**Biology**	**Physics**
Theme	**Y3. Animals Including Humans**	**Y4. Animals Including Humans**	**Y3. Forces and Magnets**	**Y3. Plants**	**Y3. Light**
Coverage	• *Skeleton and muscles* • *Nutrition* • *Exercise and health*	• *Digestive system* • *Teeth* • *Food chains*	• *Different Forces* • *Magnets*	• *Plant life* • *Basic structure and functions* • *Life cycle* • *Water transportation*	• *Reflections* • *Shadows*
Key Knowledge	• *Know about the importance of a nutritious, balanced diet* • *Know how nutrients, water and oxygen are transported within animals and humans* • *Know about the skeletal and muscular system of a human*	• *Identify and name the parts of the human digestive system* • *Know the functions of the organs in the human digestive system* • *Identify and know the different types of human teeth* • *Know the functions of different human teeth* • *Use and construct food chains to identify producers, predators and prey*	• *Know about and describe how objects move on different surfaces* • *Know how a simple pulley works and use to on to lift an object* • *Know how some forces require contact and some do not, giving examples* • *Know about and explain how magnets attract and repel Predict whether magnets will attract or repel and give a reason*	• *Know the function of different parts of flowing plants and trees* • *Know how water is transported within plants* • *Know the plant life cycle, especially the importance of flowers*	• *Know that dark is the absence of light* • *Know that light is needed in order to see and is reflected from a surface* • *Know and demonstrate how a shadow is formed and explain how a shadow changes shape* • *Know about the danger of direct sunlight and describe how to keep protected*
Working Scientifically in Year 3/4	**During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:** • *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, 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* • *reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions* • *using 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* • *using straightforward scientific evidence to answer questions or to support their findings.*				
Enquiry Ideas	• *Why does the moon appear as different shapes in the night sky?* • *Why do shadows change during the day?* • *What time of day is a shadow likely to be at its longest and shortest?* • *What are the best conditions for a plant to grow?* • *Why is the liver important in the digestive systems?* • *Which soil is suitable to grow plants?* • *Which is more efficient – your right hand or left hand?*				

Odd Years - Year 3/4					
Term	**Autumn**		**Spring**	**Summer**	
Aspect	**Biology**	**Chemistry**	**Chemistry**	**Physics**	**Biology**
Theme	**Y4. Living Things and Their Habitats**	**Y3. Rocks**	**Y4. States of Matter**	**Y4. Electricity**	**Y4. Sound**
Coverage	• *Grouping living things* • *Classification keys* • *Adaptation of living things*	• *Fossil formation* • *Compare and group rocks* • *Soil*	• *Compare and group materials* • *Solids, liquids and gases* • *Changing state* • *Water cycle*	• *Uses of electricity* • *Simple circuits and switches* • *Conductors and insulators*	• *How sounds are made* • *Sound vibrations* • *Pitch and Volume*
Key Knowledge	• *Use classification keys to group, identify and name living things* • *Know how changes to an environment could endanger living things* • *Group materials based on their state of matter (solid, liquid, gas*	• *Compare and group rocks based on their appearance and physical properties, giving reasons* • *Know how soil is made and how fossils are formed* • *Know about and explain the difference between sedimentary, metamorphic and igneous rock*	• *Know the temperature at which materials change state* • *Know about and explore how some materials can change state* • *Know the part played by evaporation and condensation in the water cycle*	• *Identify and name appliances that require electricity to function* • *Construct a series circuit* • *Identify and name the components in a series circuit (including cells, wires, bulbs, switches and buzzers)* • *Predict and test whether a lamp will light within a circuit* • *Know the function of a switch* • *Know the difference between a conductor and an insulator; giving examples of each*	• *Know how sound is made, associating some of them with vibrating* • *Know how sound travels from a source to our ears* • *Know the correlation between pitch and the object producing a sound* • *Know the correlation between the volume of a sound and the strength of the vibrations that produced it* • *Know what happens to a sound as it travels away from its source*
Working Scientifically in Year 3/4	**During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:** • *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, 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* • *reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions* • *using 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* • *using straightforward scientific evidence to answer questions or to support their findings.*			**Enquiry Ideas** • *Why are steam and ice the same thing?* • *What do we mean by 'pitch' when it comes to sound?* • *Which materials can cut out sound?* • *How fast does ice melts in different temperatures?* • *Where does a fossil come from?* • *Which type of plants grow in woodlands or in gardens? How can we group this information?* • *What are the main differences between sedimentary and igneous rocks?*	

Even Years – Year 5/6				
Term	**Autumn**		**Spring**	**Summer**
Aspect	**Biology**	**Chemistry**	**Physics**	**Physics**
Theme	**Y6. Evolution and Inheritance**	**Y5. Properties and Changes of Materials**	**Y6. Electricity**	**Y5. Earth and Space**
Coverage	• *Identical and non-identical off-spring* • *Fossil evidence and evolution* • *Adaptation and evolution*	• *Compare properties of everyday materials* • *Soluble/ dissolving* • *Reversible and irreversible substances*	• *Electrical components* • *Simple circuits* • *Fuses and voltage*	• *Movement of the Earth and the planets* • *Movement of the Moon* • *Night and day*
Key Knowledge	• *Know how the Earth and living things have changed over time* • *Know how fossils can be used to find out about the past* • *Know about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents)* • *Know how animals and plants are adapted to suit their environment* • *Link adaptation over time to evolution* • *Know about evolution and can explain what it is*	• *Compare and group materials based on their properties (e.g. hardness, solubility, transparency, conductivity, [electrical & 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*	• *Compare and give reasons for why components work and do not work in a circuit* • *Draw circuit diagrams using correct symbols* • *Know how the number and voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer*	• *Know about and explain the movement of the Earth and other planets relative to the Sun* • *Know about and explain the movement of the Moon relative to the Earth* • *Know and demonstrate how night and day are created* • *Describe the Sun, Earth and Moon (using the term spherical)*
Working Scientifically in Year 5/6	**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 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.*		**Enquiry Ideas** • *Which materials dissolve and evaporate and why is this sometimes important?* • *Can you think of five materials that can be changed and reversed and five that cannot?* • *How have scientists made use of changes to create materials that make our lives easier?* • *Can you explain why we have day and night?* • *What do we know about the other planets in our solar system?* • *Why do you not usually look exactly like your mum or dad?*	

Odd Years – Year 5/6					
Term	**Autumn**		**Spring**	**Summer**	
Aspect	**Physics**	**Physics**	**Biology**	**Biology**	**Biology**
Theme	**Y6. Light**	**Y6. Forces**	**Y5. Animals Including Humans** **Y6. Animals Including Humans**	**Y5. Living Things and Their Habitats**	**Y6. Living Things and Their Habitats**
Coverage	• *How light travels* • *Reflection* • *Ray models of light*	• *Gravity* • *Friction* • *Forces and motion of mechanical devices*	• *Changes as humans develop from birth to old age* • *The circulatory system* • *Water transportation* • *Impact of exercise on body*	• *Life cycles – plants and animals* • *Reproductive processes* • *Famous naturalists*	• *Classification of living things and the reasons for it*
Key Knowledge	• *Know how light travels* • *Know and demonstrate how we see objects* • *Know why shadows have the same shape as the object that casts them* • *Know how simple optical instruments work e.g. periscope, telescope, binoculars, mirror, magnifying glass etc.*	• *Know what gravity is and its impact on our lives* • *Identify and know the effect of air and water resistance* • *Identify and know the effect of friction* • *Explain how levers, pulleys and gears allow a smaller force to have a greater effect*	• *Create a timeline to indicate stages of growth in humans* • *Identify and name the main parts of the human circulatory system* • *Know the function of the heart, blood vessels and blood* • *Know the impact of diet, exercise, drugs and lifestyle on health* • *Know the ways in which nutrients and water are transported in animals, including humans*	• *Know the life cycle of different living things e.g. mammal, amphibian, insect and bird* • *Know the differences between different life cycles* • *Know the process of reproduction in plants* • *Know the process of reproduction in animals*	• *Classify living things into broad groups according to observable characteristics and based on similarities and differences* • *Know how living things have been classified* • *Give reasons for classifying plants and animals in a specific way*
Working Scientifically in Year 5/6	**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 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.*			**Enquiry Ideas** • *What is the relationship between pulse and exercise?* • *Which surfaces creates the most friction?* • *What can adults / children do now that they couldn't when a baby?* • *How effective are parachutes made with different materials?* • *How can we classifying vertebrate and invertebrate creatures?* • *Why do certain creatures choose their unique habitats?* • *How much easier it is to lift a heavy object using pulleys?* • *Does light travel in straight lines?*	