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| **Happiness** | **Responsibility** | | **Friendship** | | **Respect** | | **Courage** |
| **Science – Year 6** | | | | | | | |
| **Autumn Term** | | | | | | | |
| Unit | | Planning and teaching sequence | | Work Scientifically Opportunities | | National Curriculum Objectives | |
| Living things and their habitats  (Biology) | | Conditions for life | | Working scientifically − Identifying scientific evidence that has been used to support or refute ideas or  arguments. | | • Describe how living things are  classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals  • Give reasons for classifying  plants and animals based on  specific characteristics | |
| Group organisms | | Working scientifically – Use and develop keys and other  information records to identify, classify and describe  living things (non-statutory). | |
| Classify animals | | Working scientifically − 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 (non statutory). | |
| Classify plants | | Working scientifically − 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  (non-statutory). | |
| Micro-organisms | | Working scientifically − Identifying scientific evidence  that has been used to support or refute ideas or  arguments. | |
| Classify micro-organisms | | Working scientifically − 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. | |
| Carl Linnaeus | | Working scientifically − Use relevant scientific language  and illustrations to discuss, communicate and justify their  ideas and should talk about how scientific ideas have  developed over time (non-statutory). | |
| Electricity  (Physics) | | Construct and draw series circuits using symbols | | Working scientifically − Recording data and results  of increasing complexity using scientific diagrams and  labels, classification keys, tables, scatter graphs, bar  and line graphs. | | • 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 | |
| Complete and incomplete circuits | | Working scientifically – 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. | |
| Variations within circuits | | Working scientifically − Recording data and results  of increasing complexity using scientific diagrams and  labels, classification keys, tables, scatter graphs, bar  and line graphs. | |
| Plan – voltage experiment | | Working scientifically − Planning different types  of scientific enquiries to answer questions, including  recognising and controlling variables where necessary. | |
| Investigate – voltage experiment | | Working scientifically − Taking measurements, using a  range of scientific equipment, with increasing accuracy  and precision, taking repeat readings when appropriate. | |
| Evaluate – voltage experiment | | Working scientifically − Using test results to make  predictions to set up further comparative and fair tests. | |
| Renewable Energy  (Sustainability) | | What is renewable energy? | | Working scientifically – Identifying scientific evidence  that has been used to support or refute ideas or  arguments. | |  | |
| Using renewable energy? | | Working scientifically – Reporting and presenting  findings from enquiries in oral and written forms such  as displays and other presentations. | |
| Spring Term | | | | | | | |
| Light  (Physics) | | How we see | | Working scientifically − Use relevant scientific language  and illustrations to discuss, communicate and justify  their scientific ideas (non-statutory). | | • Recognise that light travels 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. | |
| Light and straight lines | | Working scientifically − Recording data and results  of increasing complexity using scientific diagrams and  labels, classification keys, tables, scatter graphs, bar and  line graphs. | |
| Shadow formation | | Working scientifically − Recording data and results  of increasing complexity using scientific diagrams and  labels, classification keys, tables, scatter graphs, bar and  line graphs. | |
| Plan – shadow experiment | | Working scientifically − Planning different types of  scientific enquiries to answer questions, including  recognising and controlling variables where necessary. | |
| Investigate – shadow experiment | | Working scientifically − Taking measurements, using a  range of scientific equipment, with increasing accuracy  and precision, taking repeat readings when appropriate. | |
| Evaluate – shadow experiment | | Working scientifically − Recording data and results  of increasing complexity using scientific diagrams and  labels, classification keys, tables, scatter graphs, bar and  line graphs. | |
| Refraction | | Working scientifically − Identifying scientific evidence  that has been used to support or refute ideas or  arguments. | |
| Explore light | | Working scientifically − Talk about how scientific ideas  have changed over time (non-statutory). | |
| Light pollution  (Sustainability) | | What is light pollution? | | Working scientifically − Identifying scientific evidence  that has been used to support or refute ideas or  arguments. | |  | |
| How can we reduce light pollution? | | Working scientifically − 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. | |
| The Circulatory System  (Biology) | | The circulatory system | | Working scientifically − Explore ideas and raise  different kinds of questions (non-statutory). | | • Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood  • Describe the ways in which nutrients and water are transported within animals, including humans | |
| Blood | | Working scientifically − Use relevant scientific language  and illustrations to discuss, communicate and justify  their scientific ideas (non-statutory). | |
| The heart | | Working scientifically − Use relevant scientific language  and illustrations to discuss, communicate and justify  their scientific ideas (non-statutory). | |
| Blood flow in the heart | | Working scientifically − Use relevant scientific language  and illustrations to discuss, communicate and justify  their scientific ideas (non-statutory). | |
| Oxygenated and deoxygenated blood | | Working scientifically − Use relevant scientific language  and illustrations to discuss, communicate and justify  their scientific ideas (non-statutory). | |
| Dissection of the heart | | Working scientifically − 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. | |
| Diet, drugs and lifestyle  (Biology) | | Diet | | Working scientifically – Identifying scientific evidence  that has been used to support or refute ideas or  arguments. | | • Recognise the impact of diet,  exercise, drugs and lifestyle on the way their bodies function | |
| Drugs | | Working scientifically – Recognise which secondary  sources will be most useful to research their ideas and  begin the separate opinion from fact (non-statutory). | |
| Cigarettes | | Working scientifically – Recognise which secondary  sources will be most useful to research their ideas and  begin to separate opinion from fact (non-statutory). | |
| Plan – heart rate experiment | | Working scientifically – planning different types of  scientific enquiries to answer questions, including  recognising and controlling variables where necessary. | |
| Investigate – heart rate experiment | | Working scientifically – Taking measurements, using a  range of scientific equipment, with increasing accuracy  and precision, taking repeat readings when appropriate. | |
| Evaluate – heart rate experiment | | Working scientifically – Using test results to make  predictions to set up further comparative and fair tests. | |
| Summer | | | | | | | |
| Variation  (Biology) | | Variation | | Working scientifically − Use relevant scientific language  and illustrations to discuss, communicate and justify  their scientific ideas (non-statutory). | | • Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents | |
| Inheritance and characteristics | | Working scientifically − Recording data and results of  increasing complexity, using scientific diagrams and  labels, classification keys, tables, scatter graphs, bar  charts and line graphs. | |
| Adaptations  (Biology) | | Animal adaptations | | Working scientifically − Recognise which secondary  sources will be most useful to research their ideas and  begin to separate opinion from fact (non-statutory). | | • 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 | |
| Plant adaptations | | Working scientifically – Identifying scientific evidence  that has been used to support or refute ideas or  arguments. | |
| Evolution | | Working scientifically – Recognise which secondary  sources will be most useful to research their ideas and  begin to separate opinion from fact (non-statutory). | |
| Charles Darwin | | Working scientifically − 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 (non-statutory). | |
| Natural selection | | Working scientifically − Recognise which secondary  sources will be most useful to research their ideas and  begin to separate opinion from fact (non-statutory). | |
| Darwin’s finches | | Working scientifically − 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. | |
| Fossils  (Biology) | | Fossil formation | | Working scientifically − Identifying scientific evidence  that has been used to support or refute ideas or  arguments. | | • Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years  ago | |
| Explore fossils | | Working scientifically − 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 (non-statutory). | |
| Mary Anning | | Working scientifically − 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. | |
| *Choose Project 1 or Project 2* | | | | | | | |
| Themed Projects 1 – Melting Points | | Plan - Melting points | | Ask questions − Explore ideas and raise different kinds of questions  (non-statutory).  • Plan − Planning different types of scientific enquiries to answer questions,  including recognising and controlling variables where necessary. | | • 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). | |
| Investigate – Metling points | | Make observations − Make their own decisions about what observations  to make, what measurements to use and how long to make them for  (non-statutory).  • Take measurements − Take measurements, using a range of scientific  equipment, with increasing accuracy and precision, taking repeat readings  when appropriate. | |
| Evaluate – Melting points | | • Gather, record and classify data − Recording data and results of increasing  complexity using scientific diagrams and labels, classification keys, tables,  scatter graphs, bar and line graphs.  • Answer questions and make conclusions − 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.  • Evaluate − Using test results to make predictions to set up further comparative  and fair tests. | |
| Themed Project 2 – Thermal Conductivity | | Plan – Thermal Conductivity | | Ask questions − Explore ideas and raise different kinds of questions  (non-statutory).  • Plan − Planning different types of scientific enquiries to answer questions,  including recognising and controlling variables where necessary. | | Compare and group materials together, according to whether they are solids, liquids or gases. | |
| Investigate Thermal Conductivity | | Make observations − Make their own decisions about what observations  to make, what measurements to use and how long to make them for  (non-statutory).  • Take measurements − Take measurements, using a range of scientific  equipment, with increasing accuracy and precision, taking repeat readings  when appropriate. | |
| Evaluate – Thermal Conductivity | | Gather, record and classify data − Recording data and results of increasing  complexity using scientific diagrams and labels, classification keys, tables,  scatter graphs, bar and line graphs.  • Answer questions and make conclusions − 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.  • Evaluate − Using test results to make predictions to set up further comparative  and fair tests. | |