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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 orarguments. | • Describe how living things areclassified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals• Give reasons for classifyingplants and animals based onspecific characteristics |
| Group organisms | Working scientifically – Use and develop keys and otherinformation records to identify, classify and describeliving things (non-statutory). |
| Classify animals | Working scientifically − Use and develop keys andother information records to identify, classify anddescribe living things and materials, and identify patternsthat might be found in the natural environment (non statutory). |
| Classify plants | Working scientifically − Use and develop keys and otherinformation records to identify, classify and describeliving things and materials and identify patterns thatmight be found in the natural environment(non-statutory). |
| Micro-organisms | Working scientifically − Identifying scientific evidencethat has been used to support or refute ideas orarguments. |
| Classify micro-organisms | Working scientifically − Reporting and presentingfindings from enquiries, including conclusions, causalrelationships and explanations of and a degree of trustin results, in oral and written forms such as displays andother presentations. |
| Carl Linnaeus | Working scientifically − Use relevant scientific languageand illustrations to discuss, communicate and justify theirideas and should talk about how scientific ideas havedeveloped over time (non-statutory). |
| Electricity(Physics) | Construct and draw series circuits using symbols | Working scientifically − Recording data and resultsof increasing complexity using scientific diagrams andlabels, classification keys, tables, scatter graphs, barand line graphs. | • Associate the brightness of a lamp or the volume of a buzzer with thenumber 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 adiagram |
| Complete and incomplete circuits | Working scientifically – Reporting and presentingfindings from enquiries, including conclusions, causalrelationships and explanations of and a degree of trustin results, in oral and written forms such as displays andother presentations. |
| Variations within circuits | Working scientifically − Recording data and resultsof increasing complexity using scientific diagrams andlabels, classification keys, tables, scatter graphs, barand line graphs. |
| Plan – voltage experiment | Working scientifically − Planning different typesof scientific enquiries to answer questions, includingrecognising and controlling variables where necessary. |
| Investigate – voltage experiment | Working scientifically − Taking measurements, using arange of scientific equipment, with increasing accuracyand precision, taking repeat readings when appropriate. |
| Evaluate – voltage experiment | Working scientifically − Using test results to makepredictions to set up further comparative and fair tests. |
| Renewable Energy(Sustainability) | What is renewable energy? | Working scientifically – Identifying scientific evidencethat has been used to support or refute ideas orarguments. |  |
| Using renewable energy? | Working scientifically – Reporting and presentingfindings from enquiries in oral and written forms suchas displays and other presentations. |
| Spring Term |
| Light(Physics)  | How we see | Working scientifically − Use relevant scientific languageand illustrations to discuss, communicate and justifytheir 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 resultsof increasing complexity using scientific diagrams andlabels, classification keys, tables, scatter graphs, bar andline graphs. |
| Shadow formation | Working scientifically − Recording data and resultsof increasing complexity using scientific diagrams andlabels, classification keys, tables, scatter graphs, bar andline graphs. |
| Plan – shadow experiment | Working scientifically − Planning different types ofscientific enquiries to answer questions, includingrecognising and controlling variables where necessary. |
| Investigate – shadow experiment | Working scientifically − Taking measurements, using arange of scientific equipment, with increasing accuracyand precision, taking repeat readings when appropriate. |
| Evaluate – shadow experiment | Working scientifically − Recording data and resultsof increasing complexity using scientific diagrams andlabels, classification keys, tables, scatter graphs, bar andline graphs. |
| Refraction | Working scientifically − Identifying scientific evidencethat has been used to support or refute ideas orarguments. |
| Explore light | Working scientifically − Talk about how scientific ideashave changed over time (non-statutory). |
| Light pollution(Sustainability) | What is light pollution? | Working scientifically − Identifying scientific evidencethat has been used to support or refute ideas orarguments. |  |
| How can we reduce light pollution? | Working scientifically − Reporting and presentingfindings from enquiries, including conclusions, causalrelationships and explanations of and a degree of trustin results, in oral and written forms such as displays andother presentations. |
| The Circulatory System(Biology) | The circulatory system | Working scientifically − Explore ideas and raisedifferent 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 languageand illustrations to discuss, communicate and justifytheir scientific ideas (non-statutory). |
| The heart | Working scientifically − Use relevant scientific languageand illustrations to discuss, communicate and justifytheir scientific ideas (non-statutory). |
| Blood flow in the heart | Working scientifically − Use relevant scientific languageand illustrations to discuss, communicate and justifytheir scientific ideas (non-statutory). |
| Oxygenated and deoxygenated blood | Working scientifically − Use relevant scientific languageand illustrations to discuss, communicate and justifytheir scientific ideas (non-statutory). |
| Dissection of the heart | Working scientifically − Reporting and presentingfindings from enquiries, including conclusions, causalrelationships and explanations of and a degree of trustin results, in oral and written forms such as displays andother presentations. |
| Diet, drugs and lifestyle(Biology) | Diet | Working scientifically – Identifying scientific evidencethat has been used to support or refute ideas orarguments. | • Recognise the impact of diet,exercise, drugs and lifestyle on the way their bodies function |
| Drugs | Working scientifically – Recognise which secondarysources will be most useful to research their ideas andbegin the separate opinion from fact (non-statutory). |
| Cigarettes | Working scientifically – Recognise which secondarysources will be most useful to research their ideas andbegin to separate opinion from fact (non-statutory). |
| Plan – heart rate experiment | Working scientifically – planning different types ofscientific enquiries to answer questions, includingrecognising and controlling variables where necessary. |
| Investigate – heart rate experiment | Working scientifically – Taking measurements, using arange of scientific equipment, with increasing accuracyand precision, taking repeat readings when appropriate.  |
| Evaluate – heart rate experiment | Working scientifically – Using test results to makepredictions to set up further comparative and fair tests. |
| Summer |
| Variation(Biology) | Variation | Working scientifically − Use relevant scientific languageand illustrations to discuss, communicate and justifytheir 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 ofincreasing complexity, using scientific diagrams andlabels, classification keys, tables, scatter graphs, barcharts and line graphs. |
| Adaptations(Biology) | Animal adaptations | Working scientifically − Recognise which secondarysources will be most useful to research their ideas andbegin 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 evidencethat has been used to support or refute ideas orarguments. |
| Evolution | Working scientifically – Recognise which secondarysources will be most useful to research their ideas andbegin to separate opinion from fact (non-statutory). |
| Charles Darwin | Working scientifically − Use relevant scientific languageand illustrations to discuss, communicate and justifytheir scientific ideas and should talk about how scientificideas have developed over time (non-statutory). |
| Natural selection | Working scientifically − Recognise which secondarysources will be most useful to research their ideas andbegin to separate opinion from fact (non-statutory). |
| Darwin’s finches | Working scientifically − Reporting and presentingfindings from enquiries, including conclusions, causalrelationships and explanations of and a degree of trustin results, in oral and written forms such as displays andother presentations. |
| Fossils(Biology) | Fossil formation | Working scientifically − Identifying scientific evidencethat has been used to support or refute ideas orarguments. | • Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of yearsago |
| Explore fossils | Working scientifically − Use relevant scientific languageand illustrations to discuss, communicate and justifytheir scientific ideas and should talk about how scientificideas have developed over time (non-statutory). |
| Mary Anning | Working scientifically − Reporting and presentingfindings from enquiries, including conclusions, causalrelationships and explanations of and a degree of trustin results, in oral and written forms such as displays andother 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 observationsto make, what measurements to use and how long to make them for(non-statutory).• Take measurements − Take measurements, using a range of scientificequipment, with increasing accuracy and precision, taking repeat readingswhen appropriate. |
| Evaluate – Melting points | • Gather, record and classify data − Recording data and results of increasingcomplexity using scientific diagrams and labels, classification keys, tables,scatter graphs, bar and line graphs.• Answer questions and make conclusions − Reporting and presenting findingsfrom enquiries, including conclusions, causal relationships and explanations ofand a degree of trust in results, in oral and written forms such as displays andother presentations.• Evaluate − Using test results to make predictions to set up further comparativeand 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 observationsto make, what measurements to use and how long to make them for(non-statutory).• Take measurements − Take measurements, using a range of scientificequipment, with increasing accuracy and precision, taking repeat readingswhen appropriate. |
| Evaluate – Thermal Conductivity | Gather, record and classify data − Recording data and results of increasingcomplexity using scientific diagrams and labels, classification keys, tables,scatter graphs, bar and line graphs.• Answer questions and make conclusions − Reporting and presenting findingsfrom enquiries, including conclusions, causal relationships and explanations ofand a degree of trust in results, in oral and written forms such as displays andother presentations.• Evaluate − Using test results to make predictions to set up further comparativeand fair tests. |