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| **Happiness** | **Responsibility** | | **Friendship** | | **Respect** | | **Courage** |
| **Science – Year 4** | | | | | | | |
| **Autumn Term** | | | | | | | |
| Unit | | Planning and teaching sequence | | Work Scientifically Opportunities | | National Curriculum Objectives | |
| Group and classify living things  (Biology) | | Group animals | | Working scientifically – Talk about criteria for grouping, sorting and classifying (non-statutory). | | * 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 local and wider environment | |
| Vertebrates and invertebrates | | Working scientifically – Asking relevant questions and using different types of scientific enquiries to answer them. | |
| Classification keys (animals) | | Working scientifically – Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. | |
| Group plants | | Working scientifically – Talk about criteria for grouping, sorting and classifying (non-statutory) | |
| Classification keys (plants) | | Working scientifically – Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. | |
| Data collection A  (Biology) | | Data collection | | Working scientifically – Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. | |  | |
| Analyse data | | Working scientifically – Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. | |
| States of matter  (Chemistry) | | Explore solids, liquids and gases | | Working scientifically – Talk about criteria for grouping, sorting and classifying (non-statutory). | | * 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 | |
| Think differently – solids, liquids and gases | | Working scientifically – Identifying differences, similarities or changes related to simple scientific ideas. | |
| Change states | | Working scientifically – Asking relevant questions and using different types of scientific enquiries to answer them. | |
| Use equipment | | Working scientifically – Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. | |
| Plan – melting experiment | | Working scientifically – Setting up simple practical enquiries, comparative and fair tests. | |
| Investigate – melting experiment | | Working scientifically – Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. | |
| The water cycle | | Working scientifically – Identifying differences, similarities or changes related to simple scientific ideas and processes. | |
| Plan – evaporation experiment | | Working scientifically – Asking relevant questions and using different types of scientific enquiries to answer them. | |
| Investigate – evaporation experiment | | Working scientifically – Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. | |
| Evaluate – evaporation experiment | | Working scientifically – Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. | |
| Spring Term | | | | | | | |
| Sound  (Physics) | | Vibrations | | Working scientifically − Asking relevant questions and using different types of scientific enquiries to answer them. | | * 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 | |
| The ear | | Working scientifically − Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. | |
| Investigate sounds | | Working scientifically − Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. | |
| Explore volume | | Working scientifically − Setting up simple practical enquiries, comparative and fair tests. | |
| Explore pitch | | Working scientifically − Identifying differences, similarities or changes related to simple scientific ideas and processes. | |
| Plan – volume experiment | | Working scientifically − Setting up simple practical enquiries, comparative and fair tests | |
| Investigate – volume experiment | | Working scientifically − Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. | |
| Evaluate – volume experiment | | Working scientifically − Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. | |
| Data collection B  (Biology) | | Data collection | | Working scientifically – Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. | |  | |
| Analyse data | | Working scientifically – Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. | |
| Electricity  (Physics) | | Common appliances that use electricity | | Working scientifically − Talk about criteria for grouping, sorting and classifying (non-statutory). | | * 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 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 | |
| Build and draw series circuit | | Working scientifically − Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. | |
| What has gone wrong? | | Working scientifically − Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. | |
| Conductors and insulators | | Working scientifically − Asking relevant questions and using different types of scientific enquiries to answer them. | |
| Conductivity within a circuit | | Working scientifically − Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. | |
| Energy  (Sustainability) | | What is energy? | | Working scientifically – Using straightforward scientific evidence to answer questions or to support their findings. | |  | |
| How can we reduce our energy usage? | | Working scientifically – Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. | |
| Summer | | | | | | | |
| Data collection C  (Biology) | | Data collection | | Working scientifically – Gathering, recording, classifying and presenting data in a variety of ways, to help in answering questions. | |  | |
| Analyse data | | Working scientifically – Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. | |
| Make conclusions | | Working scientifically − Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. | |  | |
| Habitats  (Biology) | | Living things and their habitats | | Working scientifically – Asking relevant questions and using different types of scientific enquiries to answer them. | | * 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 local and wider environment * recognise that environments can change and that this can sometimes pose dangers to living things | |
| Classification keys (animals) | | Working scientifically – Gathering, recording, classifying and presenting data in a variety of ways, to help in answering questions. | |
| Classification keys (plants) | | Working scientifically – Gathering, recording, classifying and presenting data in a variety of ways, to help in answering questions. | |
| Human impact on habitats | | Working scientifically – Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. | |
| Deforestation  (Sustainability) | | What is deforestation? | | Working scientifically – Asking relevant questions and using different types of scientific enquiries to answer them | |  | |
| What are the impacts in the UK and the rest of the world? | |  | |
| The digestive system  (Biology) | | Teeth – carnivores, herbivores and omnivores | | Working scientifically – Identifying differences, similarities or changes related to simple scientific ideas and processes. | | * 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 | |
| Human teeth | | Working scientifically – Asking relevant questions and using different types of scientific enquiries to answer them. | |
| Layers of the teeth | | Working scientifically – Recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations (non-statutory). | |
| Plan – tooth decay experiment | | Working scientifically – Setting up simple practical enquiries, comparative and fair tests. | |
| The digestive system | | Working scientifically – Recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations (non-statutory). | |
| The digestive system - model | | Working scientifically – Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. | |
| Findings – tooth decay experiment. | | Working scientifically – Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. | |
| Food chains  (Biology) | | What is a food chain? | | Working scientifically − Using straightforward scientific evidence to answer questions or to support their findings. | | * construct and interpret a variety of food chains, identifying producers, predators and prey | |
| Interpret food chains | | Working scientifically − Using straightforward scientific evidence to answer questions or to support their findings. | |
| Draw food chains | | Working scientifically − Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. | |
| What would happen if? | | Working scientifically − Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. | |