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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
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| 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
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| 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
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| 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
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| 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
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| 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
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| 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
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| 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. |