**Year 4 Science Curriculum – Spring 1**

|  |
| --- |
| **Theme: Human impact on the environment** |
| **Curriculum objectives** | **Vocabulary** | **Links across the curriculum** |
| To recognise that environments can change and that this can sometimes pose dangers to living things. | **Compare** | To estimate, measure or note the similarity or difference between items. | **Litter** | Things that have been thrown away and that are lying on the ground. | Maths:* Presenting data in tables and graphs
* Interpreting data

Geography:* The water cycle and environmental impacts

English:* Persuasive letter writing – why we should save water
* Oracy
 |
| **Evaluate** | To consider how well something has been done. | **Variable** | Something that can be changed, measured or observed in an enquiry. |
| **Biodegradable** | An adjective used to describe a material that breaks down or decays naturally through the action of micro-organisms. | **Compost** | A mixture of decaying organic matter, used for fertilising soil. |
| **Decompose** | The process where bacteria and worms break down natural materials into tiny pieces that help new plants grow. | **Environment** | The natural world of land, sea, air, plants and animals. |
| **Filter** | To use a special tool or process to separate materials. | **Fungi** | A group of living things including mould, mushrooms and yeast. |
| **Micro-organism** | Any living thing too small to be viewed by the unaided eye. | **Tier 3 vocabulary** | [SNAP23\_Y4\_M3\_environment\_ms.docx (live.com)](https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fstatic.collins.rhapsode.com%2FSnap_Science%2FTeaching_Science%2FYear_4%2FSNAP23_Y4_M3_environment_ms.docx&wdOrigin=BROWSELINK) |
| **Prior knowledge:** *What specifically have pupils learned that is relevant to this unit that they are building upon?* | **Future knowledge:** *What specifically will pupils learn in the future that is relevant to this unit?* |
| Children have previously learnt:* about the feeding relationships of animals in a habitat and how to show them in a food chain (Year 2 Biology – Living things and their habitats).
* to understand the difference between things that are alive, were once alive and never lived (Year 2 Biology – Living things and their habitats).
* that plants gain nutrients from soil which help them grow healthily (Year 3 Biology – Plants).
* what soil is made of (Year 3 Chemistry – Rocks.
* that some materials can be recycled (Year 2 Chemistry – Uses of everyday materials).
 | This prepares children for later learning:- about animal life cycles (Year 5 Biology – Living things and their habitats)- about how materials decompose (Year 5 Chemistry – Properties and changes of materials)- about adaptation (Year 6 Biology – Evolution and inheritance). |
| **Lesson Sequence** | **Key Knowledge** | **Key Skills** |
| 1. What is the impact of litter on our school?
 | * Which types of litter can be recycled.
* Identify who or what might be affected by the presence of litter in their school grounds.
* Create an argument against the statement, ‘Litter doesn't hurt anyone!’
* Consider how they might reduce the amount of litter in their school grounds or the amount of waste created in their classrooms or dining halls.
 | Working scientifically:* identifying differences, similarities [or changes] related to simple scientific ideas and processes
 |
| 1. How do materials change over time?
 | * Decomposition or decay is the rotting of once-lived things through the action of bacteria and fungi into very small pieces that can be used to help other life grow.
* Worms, micro-organisms and fungi help the remains of living things to decompose.
* Some materials, including plastics and glass, cannot decompose. They are not biodegradable.
* How to set up an observing over time enquiry.
 | Working scientifically:* setting up simple practical enquiries, comparative [and fair] tests
* recording findings using simple scientific language, drawings, labelled diagrams, [keys, bar charts,] and tables

Scientific enquiry type:* observing over time
 |
| 1. How do microplastics get into the food chain?
 | * Microfibres are a type of microplastic released when we wash plastic- based fabrics, such as fleece.
* Plastic pollution is the introduction into the environment of plastics which cause harm to living things.
* Sewage sludge containing microplastics is used as fertiliser for soil.
* Worms accidentally eat microplastics when they are eating organic matter in soil, and explore how this affects the whole food chain.
 | Working scientifically:* recording findings using simple scientific language, [drawings,] labelled diagrams, [keys, bar charts, and tables]
 |
| 1. How can we prevent microplastics from getting into our seas and oceans?
 | * Our seas and oceans are polluted with plastics which are entering the food chain.
* Carry out a comparative test enquiry to find out which material is best at filtering out microplastics.
* Scientists are developing ways to prevent microplastics from escaping into our sewage.
 | Working scientifically:- setting up simple practical enquiries, comparative [and fair] tests- recording findings using simple scientific language, [drawings, labelled diagrams, keys, bar charts,] and tables- using results to draw simple conclusions, [make predictions for new values, suggest improvements and raise further questions]Scientific enquiry type:* comparative testing
 |
| 1. How can we clean up birds affected by an oil spill?
 | * Oil, from oil spills at sea, harms animals living in ocean habitats.
* Plan, carry out and evaluate a comparative test enquiry to find out which method is best for removing oil from a feather.
* Discuss why wildlife rescue workers use detergents to clean oil from bird feathers.
 | Working scientifically:- setting up simple practical enquiries, comparative [and fair] tests- using results to draw simple conclusions, [make predictions for new values, suggest improvements and raise further questions]Science enquiry type:* comparative testing
 |
| **Themes and links** |
| **Themes (types of enquiry)** | **Where these are covered:** | **Links across the science curriculum** |
| **Observation over time** |  |

|  |  |
| --- | --- |
| **EYFS**  |  |
| **1**  | Properties and used of materials |
| **2**  | Growing seeds and bulbs |
| **3**  | Forces, friction and magnets |
| **4**  |  |
| **5**  | Plant and animal lifecycles |
| **6** | Human circulation |

 |
| **Research** | * Lesson 1
* Lesson 2
* Lesson 3
 |
| **Pattern seeking** |  |
| **Comparative and fair testing** |  |
| **Identifying, classifying and grouping** | * Lesson 4
 |  |