**Year 6 Science Curriculum – Autumn 1**

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| **Theme: Classification of living things** |
| **Curriculum objectives** | **Vocabulary** | **Links across the curriculum** |
| To describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals.To give reasons for classifying plants and animals based on specific characteristics. | **Characteristic** | A feature that is typical of a particular living thing or material. | **Common** | An adjective used to describe a characteristic or material. | Maths: Space and measureMaths: Grouping and data collection |
| **Observable** | Can be seen or measured. | **Arthropod** | An invertebrate group that includes insects, arachnids, crustaceans and myriapods. |
| **Cone** | The hard ‘egg-shaped’ part of a conifer that opens and releases the seeds. | **Conifer** | A division of plants that do not have flowers as part of their life cycle. |
| **Echinodermata** | A class of invertebrates that have a calcium skeleton and tube feet operated by fluid pressure. | **Fern** | A division of plants that do not have flowers as part of their life cycle. |
| **Flatworm** | A class of invertebrates that have simple, flattened bodies with no blood vessels; for example, tapeworms. | **Monera** | A kingdom of living things that contains the simplest form of organisms (single-celled). |
| **Moss** | A division of plants that do not have flowers as part of their life cycle. | **Mould** | A type of fungus that thrives in moist, damp conditions. |
| **Protista** | A kingdom of living things that contains mostly single-celled organisms that do not fit into any other category; most are water-based and can move. | **Spore** | A seed-like cell that allows ferns and mosses to reproduce. |
| **Taxonomy** | A way of organising and classifying different living things. | **Tier 3 vocabulary** | [SNAP23\_Y6\_M1\_classification\_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_6%2FSNAP23_Y6_M1_classification_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: animal (vertebrate) classification and structure (Year 1 Biology – Animals, including humans)to identify and name common wild and garden plants and deciduous and evergreen trees (Year 1 Biology – Plants) animal (vertebrate and invertebrate) classification (Year 2 Biology – Living things and their habitats) animal (vertebrate and invertebrate) stages of life (Year 2 Biology – Animals, including humans) differences between seed and bulb plant growth (Year 2 Biology – Plants) classification of rocks (Year 3 Chemistry – Rocks)classification of plants (flowering and non-flowering) and animals (vertebrate and invertebrate), and the use of branching keys (Year 4 Biology – Living things and their habitats). | This prepares children for later learning: about differences between species (Key Stage 3 Biology – Inheritance, chromosomes, DNA and genes). |
| **Lesson Sequence** | **Key Knowledge** | **Key Skills** |
| 1. How can we sort this mess?
 | * Children practise grouping and classifying non-living things to focus on common observable characteristics.
* They revisit the scientific skill of grouping and classifying living things from Year 4. Explain that scientists have used this approach to organising living things (organisms) for hundreds of years and this process is called classification.
* They revisit accepted grouping of living things (plants and animals) and are introduced to the additional groups that they did not learn about in Year 4 (fungi, protista and monera).
* They start to learn about the taxonomy of organisms, building on what they have already learnt about how living things are grouped.
* The scientist most famous for his work in taxonomy is Carl Linnaeus (1707–1778).
* The five vertebrate classes (mammals, birds, reptiles, amphibians and fish).
* The five invertebrate classes (arthropods, molluscs, annelids, flatworms and echinodermata).
* The four arthropod orders (insects, arachnids, crustaceans and myriapods).
* The four divisions of plants (flowering plants, conifers, ferns and mosses).
 | Working scientifically:* Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.
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| 1. What plants are there other than flowering plants?
 | * Group the plants into the four divisions – flowering plants, conifers, ferns and mosses.
* Flowering plants produce flowers as part of their life cycle, and conifers, ferns and mosses do not.
* Mosses have no roots.
* Conifers have needles rather than leaves.
 | Working scientifically: * Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.
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| 1. How can we classify animals?
 | * Vertebrate has an internal skeleton for support and an invertebrate does not.
* The vertebrate five classes (mammals, birds, reptiles, amphibians and fish).
* The invertebrate cinto five classes (arthropods, molluscs, annelids, flatworms and echinodermata).
* The arthropods into four orders (insects, arachnids, crustaceans and myriapods.
* How we still use his taxonomy today. Demonstrate how a lion is called a lion as its species name because of Linnaeus’ taxonomy and how Carl Linnaeus presented the findings from his enquiries in books, including his most well-known one, Systema Naturae.
 | Working scientifically:* Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.
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| 1. What else is living besides plants and animals?
 | * The three kingdoms: fungi, protista and monera.
* Many of the features of these three kingdoms are hard to see as common observable characteristics because they cannot be seen with the naked eye, and very powerful microscopes are needed to understand more of their characteristics.
* Monera are single-celled organisms and protista are mostly single-celled. Explain ‘single-celled’ here as the simplest form of organism. (Children will learn about cells in Key Stage 3.)
* Places a mould (type) of fungus can grow. Mould can thrive in moist, warm conditions (in cold, dry conditions it will grow slower, if at all).
 | Working scientifically:* Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary

Scientific enquiry type: * Observing over time
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| 1. How can we identify living things?
 | * ‘Identify’ means the process by which we name an individual species
* What makes a good yes/no question in a branching key.
* Create a branching key and learn what makes an effective one.
* The species name is derived from common observable characteristics at each stage in the taxonomy.
 | Working scientifically:* Recording data and results of increasing complexity using [scientific diagrams and labels,] classification keys, [tables, scatter graphs, bar and line graphs].
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| 1. What lives here?
 | * Children independently plan the location and approaches for collecting a range of organisms.
* They explore the school grounds or local area to collect and identify a range of organisms.
* They use published branching keys, ID guides or ID apps to help with identification.
* They revisit species names and connect them to classification and taxonomy.
* They prepare to use the identified species collected today in the final lesson in the module by taking appropriate field notes and photographs.
 | Working scientifically: * Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Scientific enquiry type:
* identifying and classifying.
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| **Themes and links** |
| **Themes (scientific enquiry)** | **Where these are covered:** | **Links across the science curriculum** |
| **Observation over time** | * Lesson 4
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| **EYFS**  |   |
| **1**  | Seasons |
| **2**  | Growing |
| **3**  | Light |
| **4**  | Electricity |
| **5**  | Materials |
| **6** |  |

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| **Research** |  |
| **Pattern seeking** | * Lesson 1 : Grouping and classifying
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| **Comparative and fair testing** | * Lesson 4
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| **Identifying, classifying and grouping** | * Lesson 2: Group the plants into the four divisions – flowering plants, conifers, ferns and mosses.
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