

Science

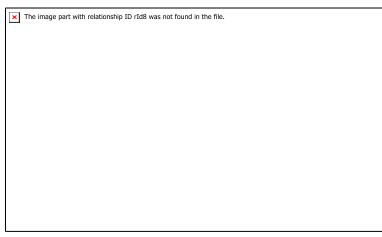
Living things and their Habitats Year 6

Remember when

Animals can be grouped into carnivores, herbivores and omnivores. (Y1/Y2/Y4)
 They can also be grouped into vertebrates and invertebrates. (Y1/Y2/Y3/Y4)
 Plants can make their own food but animals cannot (Y3)
 Organisms can be classified and we can use a classification key to identify them. (Y4)
 Examples of habitats (including microhabitats) and the organisms that can be found there. (Y2/Y4)
 Living things depend on each other to survive. How environments are changing. (Y2/Y4)
 The relationships between predators and prey. (Y4)
 Food chains demonstrate the direction in which energy travels. (Y2/Y4)

Sticky knowledge

- Living things can be formally grouped according to their characteristics
- Plants and animals are two main groups but there are other groups such as micro-organisms and mushrooms.
- Vertebrates can be divided into five smaller groups- fish, amphibians, reptiles, birds, mammals
- Invertebrates can be divided into a number of groups including insects, spiders, snails and worms
- Plants can be divided into two main groups- flowering and non-flowering
- There are 6 main types of microorganism: bacteria, archaea, fungi (yeasts and molds), algae, protozoa, and viruses.
- Some microorganisms are beneficial and some are harmful.
- Carl Linnaeus developed a classification system



Key vocabulary

algae
 bacteria
 Carl Linnaeus
 classification
 fungi
 habitat
 invertebrates
 life processes
 living things
 microhabitat
 microorganism
 nutrition
 organism
 species
 vertebrates

National Curriculum

- 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
- Give reasons for classifying plants and animals based on specific characteristics

Common Misconceptions

Some children may think:

- all micro-organisms are harmful
- mushrooms are plants

	LO	Lesson outline
Lesson 1 LO: To classify animals according to observable characteristics Enquiry type: Grouping and Classification	SK: Living things can be formally grouped according to their characteristics Plants and animals are two main groups but there are other groups such as micro-organisms and mushrooms. Vertebrates can be divided into five smaller groups- fish, amphibians, reptiles, birds, mammals Invertebrates can be divided into a number of groups including insects, spiders, snails and worms Skill: Recording data and results of increasing complexity using scientific diagrams and labels, classification keys,	What is Classification? 'Scientists believe that there could be as many as 10 million different species on Earth! It would be very hard to study the lives and behaviours of all these living things without grouping them together somehow. Scientists sort and group living things according to their similarities and differences. This is called classification. Scientists who classify living things are called taxonomists.' Recap classification keys from Year 4. Task 1: Sorting and Grouping: Children discuss how to sort and group the snacks. Guide the children through splitting the snacks into smaller and smaller groups. Classification Conundrum: Children act as taxonomists to classify animals for a new zoo, by sorting and grouping the animals on the differentiated Zoo Animals List, using the differentiated Zoo Classification GDS/SEN- differentiated task to achieve outcome. GDS to have harder to classify animals – similar animals that they need to distinguish small differences between.
Lesson 2 LO: To understand what a	SK: Plants and animals are two main groups but there are other groups such as	Video link: https://www.youtube.com/watch?v=9JW63U2mzqo

<p>microorganism is.</p> <p>Enquiry type: Research</p>	<p>micro-organisms and mushrooms.</p> <p>There are 6 main types of microorganism: bacteria, archaea, fungi (yeasts and molds), algae, protozoa, and viruses.</p> <p>Skill: Identifying scientific evidence that has been used to support or refute ideas or arguments.</p>	<p>Creative Teaching Articulate Through Art (p. 57) Children observe images of different microorganisms as viewed through microscopes. Children can then recreate these images using sketching, printing, painting or collage</p>
<p>Lesson 3</p> <p>LO: To know that some microorganisms are beneficial and some are harmful.</p> <p>Enquiry type: Research</p>	<p>SK: Plants and animals are two main groups but there are other groups such as micro-organisms and mushrooms.</p> <p>There are 6 main types of microorganism: bacteria, archaea, fungi (yeasts and molds), algae, protozoa, and viruses.</p> <p>Some microorganisms are beneficial and some are harmful.</p> <p>Skill: Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations.</p>	<p>What are Microorganisms? Describe and explain microorganisms 'Microorganisms are very tiny living things. They are so small that they are not visible to the naked eye, so a microscope is needed to see them. Microorganisms can be found all around us. They can live on and in our bodies, in the air, in water and on the objects around us. They can be found in almost every habitat on Earth.'</p> <p>Helpful or Harmful? Describe the helpful and harmful uses and effects of microorganisms using the images and information on the Lesson Presentation.</p> <p>In the hall or other large space so children have more space to move around. Point out the Microorganism Names stuck around the room. Show children a Helpful or Harmful Card. Children have 10 seconds to decide which type of microorganism is responsible for the example shown on the card, before moving to stand under the name of the correct Microorganism Name. Repeat with each card.</p> <p>Task: Investigation What Makes Mould Grow?</p> <p>Describe the examples of variables they may choose to change in their investigation.</p> <p>SEN- support with word bank and descriptions</p> <p>GDS- More detail required in the conclusion.</p>
<p>Lesson 4</p> <p>LO: To know how microscopes work and what they can be used for.</p> <p>Enquiry type:</p>	<p>SK: There are 6 main types of microorganism: bacteria, archaea, fungi (yeasts and molds), algae, protozoa, and viruses.</p> <p>Skill: Identifying scientific evidence that has been used to support or refute ideas or arguments.</p>	<p>What is a microscope? What are microscopes used for? Introduce the history of microscopy and significant scientists (Hooke, Leeuwenhoek, Lister). What developments were made by each?</p> <p>Allow children to look at different materials under a microscope. What do they notice? (different microscopes/magnifiers can be used here – including a water lense [droplet of water on a flat, transparent surface]) Can also look at images on Explorify of zoomed in materials. Can children guess what they are?</p> <p>Children to explain the differences in what they could see with the naked eye and what they can see using the microscopes. How would this have helped scientists to develop their thinking about microorganisms? What more could they have learned by using microscopes? What impact has this had on the wider world? Discuss disease transmission, multiplication of bacteria.</p>
<p>Lesson 5</p> <p>LO: To know about the work of Carl Linnaeus</p> <p>Enquiry type: Research</p>	<p>SK: Carl Linnaeus developed a classification system</p> <p>Skill: Identifying scientific evidence that has been used to support or refute ideas or arguments.</p>	<p>Children discuss why it is important to have a standard system of classification. Discuss possible problems caused by not following a standard system.</p> <p>Task 1: Who was Carl Linnaeus? Describe Carl Linnaeus and his work on the classification system, using the information given</p> <p>Task 2: label the Linnaean System: Explain the Linnaean system of classification using the information and diagrams</p> <p>Classification Quiz: Children work in groups to compete in a quiz about the Linnaean system of classification. Groups fill in their team name on the Classification Quiz Activity Sheet. Read out the questions on the Questions and Answers Sheet, allowing groups time to answer. Go through the answers while groups mark their answers.</p> <p>Classifying Species: Use the diagram on the lesson presentation to show how a species can be classified at each level of the standard system.</p> <p>Task 3: Classifying Species Activity: Children choose one of the living things from the list on the lesson presentation. Children use books or the Internet to research the living thing and complete the Classifying. Children give the scientific name of their chosen living thing using the genus and the species.</p> <p>GDS/SEN- differentiated task to achieve outcome</p>

<p>Lesson 6</p> <p>LO: To classify an unknown plant or animal.</p> <p>Enquiry type: Grouping and classification</p>	<p>SK: Living things can be formally grouped according to their characteristics</p> <p>Skill: Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations</p>	<p>Recap prior learning- focus on the last part of the previous lesson.</p> <p>Use information about the characteristics of an unknown animal or plant to assign it to a group using Carl Linnaeus' classification system.</p> <p>GDS/SEN- differentiated task to achieve outcome</p> <p>+SK quiz</p>
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Assessment

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