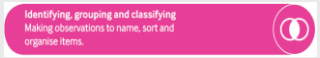
Mendell Primary School

Aspire Challenge Achieve

Medium Term Plan Science

Year Group: 6 **Term: Autumn 2** **Teacher: Sarah Wearing/ Dionne Sinatti**	**Subject lead: Sarah Bride**	**Overview: Living Things and Their Habitats** • 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. 	**Key End Points** ☐Describe the characteristics of amphibians, reptiles, birds, fish and mammals (recap Y4) ☐ Compare the characteristics of animals in different groups ☐ Talk about the two main groups of plants (flowering and non-flowering) and give examples of each ☐ Create classification keys for plants and animals and micro-organisms (partial recap Y4) ☐ Explain what micro-organisms are and how they help or hinder us ☐ Say what the 5 kingdoms of living things are ☐ Talk about the work of Carl Linnaeus and why his work was influential ☐ Use classification materials to identify unknown plants, animals and microbes ☐ Classify living things	
Common Misconceptions: **Some children may think:** • all micro-organisms are harmful • mushrooms are plants.	**Unit key Vocabulary:** Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering, non-flowering, micro-organism, classification			
Links to other learning:	**Prior Learning:** • Recognise that living things can be grouped in a variety of ways. **(Y4 - Living things and their habitats)** • Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. **(Y4 - Living things and their habitats)** • Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird**. (Y5 - Living things and their habitats)** • Describe the life process of reproduction in some plants and animals. **(Y5 - Living things and their habitats)**	**Future Learning:** • Differences between species. **(KS3)**	**High Quality Text;** Beetle Boy—M G Leonard **Scientist to study: Carl Linnaeus**	**Risk Assessment:** Warn children about insect who might bite or sting during bug hunt. Remind children to wash hands after exploring outside.
				Teacher CPD: Reach Out CPD - https://www.reachoutcpd.com/ sign up for free. ASE Plan Kiruthiga work.

	Learning Intention	Lesson Outline (Key Questions in colour)	Resources	Vocabulary	Lowest 20% Adaptations
1	L.I. I can group examples of animals, plants and fungi/ micro-organisms.	**This is a Science lesson. In Science, we study nature and the behaviour of natural things. The skill we will be using this lesson is making observations and asking questions** **Word of the week: classification –** grouping living things according to common characteristics **Big Question: How can we classify living things?** Ask the children to think about what they have learnt previously about classifying animals – can they recall mammals, fish, birds, amphibian and reptile from Year 2? Gather feedback of all ways the children can recall of sorting living things e.g. invertebrates, vertebrates, cold blooded/warm blooded, herbivore, carnivore, omnivore.	ASE Plan PowerPoint presentation Picture cards/sheet	**Animal: Classification.** **Fungus:** A **fungus** (plural **fungi**) **Micro-organism: Micro-organisms**	

Encourage discussion on why scientists classify - Scientists estimate that Planet Earth is home to 8.7 million species. Classification makes sense of this huge diversity. Scientists classify living things to help explain their relationships to each other and to be able to learn things about newly discovered organisms by noting their similarities to known organisms.

PowerPoint: Talk or think about five different animals you already know.

- **What makes an animal an animal?**

Plants come in many shapes and sizes. **What makes plants different from animals?**
Watch this short BBC clip about plants
https://www.bbc.co.uk/bitesize/clips/z2k4d2p

Watch this clip about Carl Linnaeus. He was an eighteenth century scientist interested in organising plants and animals into groups. He wasn't successful first time!
https://www.tigtagworld.co.uk/film/carl-linnaeus-PRM00688/

- **How did Linnaeus simplify the names of plants and animals?**

Linnaeus realised living things can be grouped according to characteristics. He gave each living thing a two-part Latin name. The two main groups of living things are animals and plants. Other living things include fungi and micro-organisms, such as mushrooms, yeast and bacteria.

Provide the children with the picture cards from the PowerPoint and ask them to classify these living things by grouping into Animals, Plants and Fungi / Micro-organisms
Recording example below:
Challenge the children to add example of their own. Encourage children to annotate their sorting with information they can recall from previous learning and from ideas today.

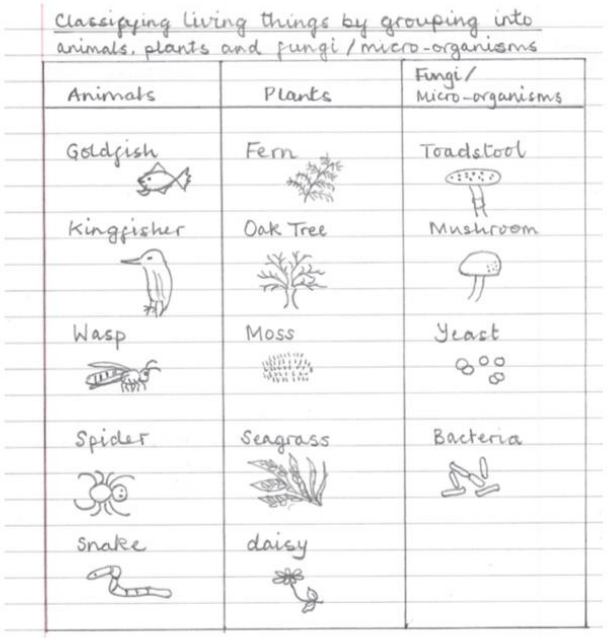
Plants include trees, mosses, ferns, grasses and many flowering plants.

Plants in the sea include seagrass and some types of seaweed.

Animals include minibeasts such as insects, spiders and worms. They also include birds, fish, reptiles, mammals and amphibians.

Possible learning outcome for reviewing your work.

I can group examples of animals, plants and fungi / micro –organisms.

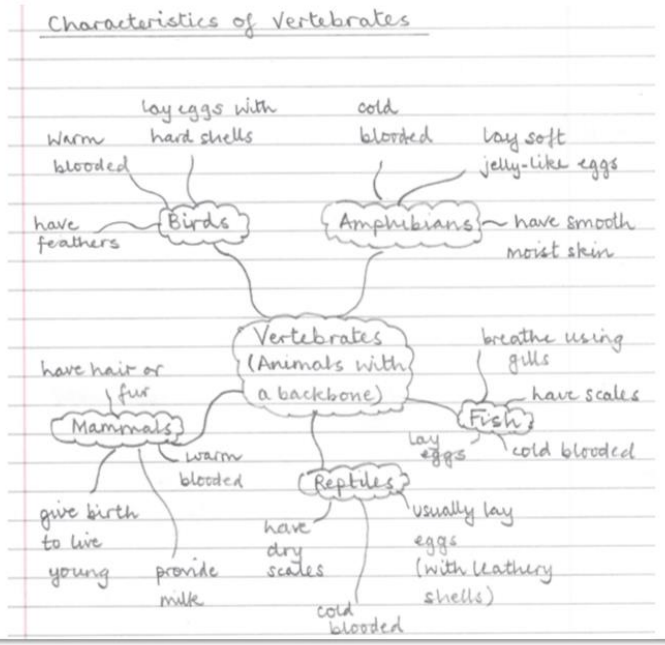


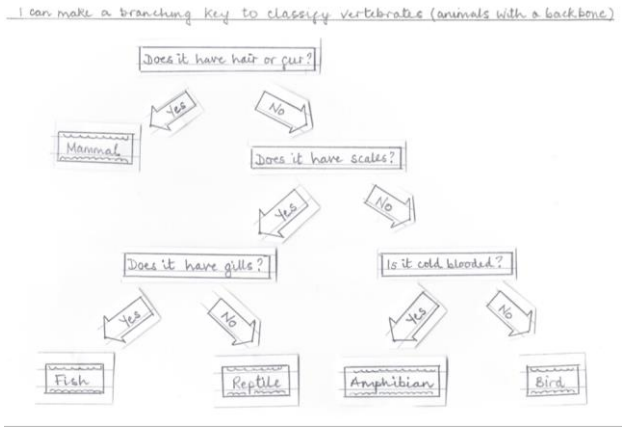
Microorganisms can be 'good' or 'bad'. Many bacteria live in our gut. Bacteria can also cause diseases.

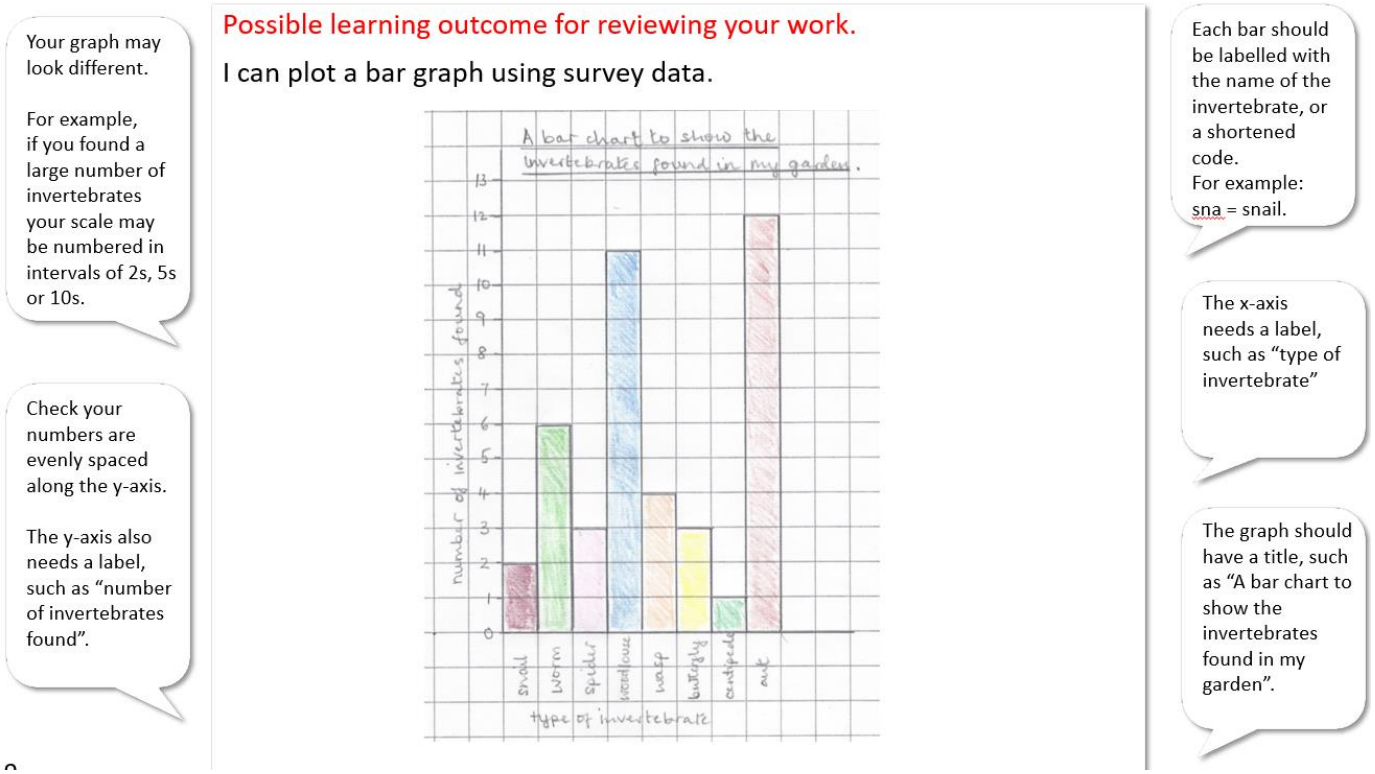
Fungi are different from plants. They include mushrooms and toadstools. Yeast is a fungus but often classified as a micro-organism.

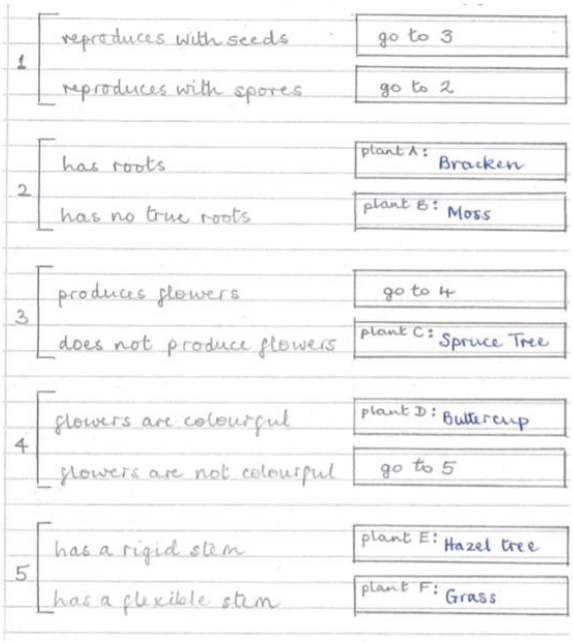
8

Plant
Virus

2	L.I. I can describe the characteristics of Fish, Reptiles, Amphibians, Birds and Mammals	**This is a Science lesson. In Science, we study nature and the behaviour of natural things. The skill we will be using this lesson is making observations and asking questions** **Word of the week: characteristic -** Characteristics are features of living things which help scientists classify them. **Big Question: How can vertebrates be classified?** PowerPoint: Odd One Out - a ladybird, a crab and a tortoise. • **Which one do you think is the odd one out?** • Think about the animal characteristics to help you. You can also classify animals as **vertebrates** – with a backbone, or **invertebrates** – without a backbone. Watch BBC bitesize to find out whether ladybirds, crabs or tortoises have a backbone. https://www.bbc.co.uk/bitesize/topics/zn22pv4/articles/z8mbqhv https://www.bbc.co.uk/bitesize/topics/zn22pv4/articles/zp6g7p3 Watch this 7 minute clip about vertebrates. Try to jot down some of the features which help to classify each group. https://www.bbc.co.uk/teach/class-clips-video/science-ks2--ks3-classification-of-organisms/zh7g92p Continue with the power pint which explaining that vertebrates can be split into five different groups. Explore the characteristics that help classify vertebrates. For example, **birds** are **warm blooded**, **lay eggs** with hard shells and have **feathers.** **Activity:** Create a mind map of the five vertebrate groups, adding labels to describe the main features of each group. **Extension:** Find out more about a vertebrate of your choice. **Recording example:** again encourage annotation of thinking. Amphibians include frogs, toads and newts. They have a smooth moist skin and are cold blooded. They lay soft jelly-like eggs and can live on land and in the water. Mammals have fur or hair and are warm blooded. They give birth to live young and provide milk. Some live in water but need to breathe air, like whales and dolphins. Possible learning outcome for reviewing your work. I can describe some of the characteristics of mammals, fish, reptiles, birds and amphibians.  Fish have scales and fins. They are cold blooded and lay eggs. They live in water and breathe using gills. Reptiles have dry, scaly skin and are cold blooded. They usually lay leathery eggs. Birds have feathers and are warm blooded. They lay eggs with hard shells. Birds have wings, but some do not fly. 8	ASE PLAN PowerPoint Odd one out pictures	**Characteristic classify Classification Invertebrate Vertebrate fish, amphibians, reptiles, birds, mammals,**	

3	L.I. I can make a branching key to classify a group of objects. I can make a branching key to classify vertebrates (animals with a backbone).	**This is a Science lesson. In Science, we study nature and the behaviour of natural things. The skill we will be using this lesson is making observations and asking questions** **Big Question: How can we use a branching key to classify vertebrates?** **Word of the week; branching key -** A branching key can be used to identify different animals. The key asks questions based on features of the animals, where the answer is 'yes' or 'no'. PowerPoint: **Investigate…** Spread out about 10 different liquorice allsorts. Talk or think about their features: • Round or square? • Number of different colours? • Smooth or rough surface? Select 8-10 different sweets and try writing down some questions which will give the answer 'yes' for some sweets and the answer 'no' for the rest: *For example: Is it round? Is it pink? Is it smooth? Test each question by sorting the sweets into two piles:* Use the liquorice allsorts to model how to make branching keys in groups – see example on PowerPoint. Explain in our last lesson we learnt about the features or characteristics of animals with a backbone, **vertebrates**. *For example:* • *Birds and mammals are warm blooded; fish, reptiles and amphibians are cold blooded.* • *Fish and reptiles have scales; birds, mammals and amphibians do not.* **Vertebrates** can be classified using a branching key. Think about some questions you could ask when making a key for vertebrates. **Activity:** Create a branching key for **a mammal, a fish, a reptile and a bird. –** example in PowerPoint. Recording examples:     **Exit pass:** Watch this clip about the platypus. https://www.tigtagworld.co.uk/film/why-do-we-classify-PRM00146/ • **Which two animals mentioned have features similar to a platypus?** • **Which vertebrate group does a platypus belong to?** Children answer the question: **Why do scientists find it difficult to classify a platypus**	ASE PLAN PowerPoint Branching key labels for lower ability. Liquorice allsorts	**Characteristic classify Classification Invertebrate Vertebrate Branching key fish, amphibians, reptiles, birds, mammals.**	

4	L.I. I can describe some characteristics of invertebrates	**This is a Science lesson. In Science, we study nature and the behaviour of natural things. The skill we will be using this lesson is recording data.** **What do you already know about animals without backbones?** **Word of the week: exoskeleton** Odd One Out: millipede, earthworm and beetle. Look carefully at these three invertebrates. Which one do you think is the odd one out? Think about their features or **characteristics** to help you. – share responses and use the video clips on the PowerPoint to find out more. Conduct a survey of invertebrates by looking in forest school. Make a **tally chart** of the invertebrates you find. – if the weather is poor use the following link: https://www.woodlandtrust.org.uk/trees-woods-and-wildlife/animals/other-invertebrates/ Use the data collected to make a bar chart to show the invertebrates you found in your survey. – If weather was poor use prepared data. **Extension:** branching key for invertebrates on PowerPoint. **Recording example:** 	Forest school slot. ASE PLAN PowerPoint Identification key	**insects, spiders, snails, worms Characteristic Classification: Classification exoskeleton Identification key: Invertebrate: Survey: Vertebrate:**	
5	L.I. I can describe the characteristics of flowering and non-	**This is a Science lesson. In Science, we study nature and the behaviour of natural things. The skill we will be using this lesson is making observations** **Big question: What do you already know about flowering and non-flowering plants?** Watch these two BBC clips about classifying plants. https://www.bbc.co.uk/bitesize/clips/zsdkjxs https://www.youtube.com/watch?v=cgVlrtGnG6s Think about these questions as you watch:	https://www.dkfindout.com/uk/animals-and-nature/plants/non-flowering-plants/ https://www.woodlandtrust.org.uk/trees-woods-and-wildlife/plants/ferns/	**Flowering plant, non flowering plant, paired statement key, pollination.**	

	flowering plants. Use a statement key to classify a group of plants.	• **Which type of plants produce seeds?** • **Which type of plants produce spores?** A Flowering plant reproduces with seeds which are protected by a flower or fruit. https://www.dkfindout.com/uk/animals-and-nature/plants/flowering-plants/ https://www.woodlandtrust.org.uk/trees-woods-and-wildlife/plants/grasses-and-sedges/ **Why are the flowers of some plants brightly coloured and those of other plants a dull green or brown?** - Insect-pollinated plants usually have coloured petals. Many trees and grasses have dull, hanging flowers as they rely on the wind for pollination. Using the PowerPoint explore examples of non-flowering plants. Explain how a paired statement key works using the PowerPoint. **Activity**: use a paired statement key to classify hazel tree, buttercup, bracken, moss, spruce tree and grass. **Recording example;** Plant A: Bracken. It is a fern. It reproduces with spores. It has roots, stems and leaves. Plant B: Moss. Moss reproduces with spores. It has no true roots and usually grows in damp, shady places. Plant C: Spruce Tree. It does not produce flowers. It has seeds contained in cones. Possible learning outcome for reviewing your work. I can use a paired statement key to classify plants.  Plant D: Buttercup. It has brightly coloured petals that attract insects for pollination. Plant E: Hazel Tree. It has catkins as flowers which hang down so the pollen is carried by the wind. Plant F: Grass. Grasses usually have dull green or brown flowers and stems which bend in the breeze. 8	ASE PLAN PowerPoint		