Pioneer Federation
Medium term plan
Cycle 1, Term 3
Science

Subject: Science

Key Concept/ Theme: Living things and their habitats. Classification of plants, microorganisms and animals

Prior Learning links: See topic cover for vocabulary progression and previous language taught.

Year 1 /2: Explore and compare the differences between things that are living, dead, and things that have never been alive. Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. Identify and name a variety of plants and animals in their habitats, including micro-habitats. Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.

Year 3 /4: 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

Year 5: Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Describe the life process of reproduction in some plants and animals.

Vocabulary:

Classification

Vertebrate, invertebrate

Kingdoms: animal, plant, 'micro-organism'

Classes: amphibian, reptile, bird, mammal,

Scales, feathers

Flowering plant, non-flowering plant

Species

Related

Features

School specific areas to cover (where applicable):

Explain that this term they have been asked by someone in the school (head, the eco reps, forest school leader…) to find out about the living things in their environment so that they can use this information to think about planning for the future in our school. At the end of the term they will be asked to write a letter sharing their knowledge but also backing up their ideas with research, scientists and evidence. This could be to encourage more wild areas or something more specific that each school might need.

Pioneer Federation
Medium term plan
Cycle 1, Term 3
Science

1.	**Deeper learning question for the term: Does classification help the world we live in today?** **Prior learning reconnection (year group, cycle & term):** Year 2, 4 and 5- see vocabulary list on topic to start the term reminding them of the vocabulary they already know and specific vocabulary linked to classifying. **LO:** Let's learn how to use a classification key. **Enquiry skill: sorting and classifying** **Activity:** Pre assessment: Ask children to think of as many different animal groups that they know of and how they would sort the animals.(pre assessment task to see what scientific vocabulary they are using, how they would sort and the ways they are sorting- use the vocabulary list from previous years to prompt them but not this terms vocab). Liquorice Allsorts challenge to focus on classification keys. Introduce the classification skill from topic page and explain how there are many different ways of classifying. Ask the children to reflect on why we classify- add to it each lesson in different colours to show learning over the term. https://www.bbc.co.uk/bitesize/articles/zyq9r2p#z8sff82 Introduce Carolus Linnaeus, Children to explain who he was and why he was so important to science and then the world we live in today. *Make time throughout the first week to watch the videos (listed at the bottom of the MTP) to support their learning in the next lesson and to immerse them in different groups of animals/classification. Provide time after these for the children to discuss what they have seen. They could have jotters to note down facts ready to use for next lesson.* **Future learning links: As this topic is in winter there will need to be planned sessions in forest school in different seasons to be able to classify summer flowers and trees.**
2.	**Deeper learning question:** Can all animals be classified in the same way? **Reconnection:** What is classification? Photos of liquorice task to remind them. **LO:** Let's learn how to classify different animal groups. **Enquiry skill: sorting and classifying** **Activity:** classifying animals. Ask the children to reflect back on the videos they have seen in the past week and explain that they will be using their science jotters to help them when they become classification scientists today. Provide pictures of beetles, mammals (rabbits and hares), birds, amphibians (frogs and toads) and butterflies. Provide templates for some children to use if they need to, encourage others to draw their own classification tables/charts. Children to move round the different stations to look at the pictures and decide how they would classify them, draw their different ways.
3	**Deeper learning question:** Are micro-organisms living things? Can they be classified? **Reconnection:** How many different words can you list to sort animals? **LO:** Let's learn how to how to identify microorganisms and identify the best conditions for growth. **Enquiry skill: So what? observing** **Activity:** Classifying micro-organisms. Link back to the work of Carolus Linnaeus. Children to use play dough to make the 3 different types of micro-organisms. We will be focusing on fungi and bacteria (eukaryotic). Teacher to set up a bread mould experiment to show children how these are living things and where they grow best. Refer to risk assessment attached for growing micro-organisms in class. Where are the best conditions? Damp- why do they think this? Can they find any fungi's growing in their local area? Go on a walk to a forest or use the forest school area to find some. Use gatekeeper classification chart to identify the fungi. This could be done in forest school sessions and recorded in science books when session occurs.
4	**Deeper learning question:** Are all plants growing in our local area the same? **Reconnection:** What are the 3 types of microorganisms and where do they grow best? **LO: Let's learn about plants are growing in our local area.**

Pioneer Federation
Medium term plan
Cycle 1, Term 3
Science

	Enquiry skill: observing **Activity:** naming plants Watch https://www.bbc.co.uk/programmes/p011mpkk encourage children to think about how classification helps us in the real world, which jobs need this skill and how does it impact the wider world? Link to their visit to Wakehurst place last summer and how they are connected to Kew gardens. Focus on the work that they scientists do with the plants. Introduce children to the groups of plants below: **Algae** are simple plants that do not have roots, stems or leaves. Most algae live in water. **Mosses and liverworts** are plants with very simple leaves or a leaf-like form. Some have root-like structures that help in anchoring the plant. **Ferns** are flowering green plants with true roots. Stems and leaves. They produce spores during reproduction. **Seed-bearing plants** can be divided into two broad groups, conifers and flowering plants**. Conifers** produce their seeds in cones. **Flowering plants** produce seeds protected inside fruits. **Lichens** are a special kind of living thing. They are an alga and a fungus living together Children to go outside and find examples of this in the school grounds or forest school area. Use a digital camera/microscope to record their findings. You might need to walk the grounds to identify where they are growing before taking the children out and mark where they have to search for these. Children to observe and record. They can use the classification keys to identify.
5	**Deeper learning question:** Can we attract more bees and butterflies to our school grounds? **Reconnection:** What different types of plants grow in our local area and why do they grow there? **LO:** Let's learn how the plants we grow impact the world around us. **Enquiry skill:** So what? **Activity:** Over recent years there have been scientists who have declared that there has been a decrease in many species of butterflies and bees in Britain. This could be partly due to a decrease in particular plants that they feed upon. Share the first part of the video with the children. https://www.youtube.com/watch?v=uAEohfZ4B-o Can the children list plants that have flowers that will attract particular bees or butterflies? Think about the plants and flowers they have in their schools. Further information can be found on the Butterfly Conservation website and the Bee Conservation trust website. After the children have performed their survey they might decide that new species of plants need to be planted in order to encourage more butterflies and bees in the future. The children could ask the eco reps in their school to fundraise for seeds/plants to be brought and then the 5/6 class could then be responsible for planting these and observing the bees and butterflies throughout the year. Year 2 will have planted bulbs in T2 so each class will be responsible for something growing over the year) They will also need to work out whether they have enough evidence to support or refute the arguments made by the scientists. Children to present their findings of the school, what they are planning to plant/where and why. If there is a bee keeper near to your school invite them in to talk about the important job of a bee or invite a local gardener in to talk about the plants they would use.
6	**Deeper learning question:** How can we use our learning to make our local environment better? **Reconnection:** Why is there a decrease in bees and butterflies? How can we help this? Ask the children to produce a piece of writing to send to their head teacher explaining what they have found throughout the term. They will be sharing their understanding of scientists, classification, scientific vocabulary and evidence from their local area. Quiz questions

Pioneer Federation
Medium term plan
Cycle 1, Term 3
Science

End points: To be able to identify mico-organisms in our local area. To identify different types of plants and microorganisms growing in our local area. To classify animals, plants, microorganisms and explain why and how they have been sorted. After classifying, being explain the impact of what grows in our local area and why we need these to support different wildlife and plant growth for our eco systems. To understand the role of scientists when researching plants using classification keys and how this can help people in the world today.	