Year 4 Medium Term Planning

Subject: Science- Living things and their habitats

Summer term 1

National Curriculum objectives	Prior learning	Future learning
• 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.	• Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 - Animals including humans) • Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Y1 – Animals, including humans) • All objects are either living, dead or have never been alive. • Living things are plants (including seeds) and animals. • Dead things include dead animals and plants and parts of plants and animals that are no longer attached. • Objects made of rock, metal and plastic have never been alive. • Animals and plants live in a habitat to which they are suited e.g pond, grassland, woodland, seashore, polar, rainforest, desert. • The habitat provides the basic needs of the animals and plants – shelter, food and water. • Within a habitat there are different micro-habitats e.g. in a woodland – in the leaf litter, on the bark of trees, on the leaves. • The way that animals obtain their food from plants and other animals can be shown in a food chain.	• 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) • Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. (Y6 - Living things and their habitats) • Give reasons for classifying plants and animals based on specific characteristics. (Y6 - Living things and their habitats)

Key knowledge	Key vocab	Common misconceptions.
• Living things can be grouped/classified) in different ways according to their features. • Classification keys can be used to identify and name living things. • Living things live in a habitat which provides an environment to which they are suited These environments may change naturally e.g. flooding, fire, earthquakes etc. • Humans also cause the environment to change. This can be in a good way (such as setting up nature reserves) or in a bad way (such as littering). These environments also change with the seasons; different living things can be found in a habitat at different times of the year. • Living things can be classified as producers, predators and prey according to their place in the food chain.(This is from Animals, including humans, but fits better here with habitats)	Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate, prey predator food chain producer consumer	Some children may think: • the death of one of the parts of a food chain or web has no or limited consequences on the rest of the chain • there is always plenty of food for wild animals • animals are only land-living creatures • animals and plants can adapt to their habitats, however they change • all changes to habitats are negative.

Enquiry Question	Key knowledge and vocabulary	Teaching Activities	Resources
1. What makes something a living organism? How can we group living things?	• To stay alive and healthy, all living things need certain conditions that let them carry out the seven life processes: Movement Respiration Sensitivity Growth Reproduction Excretion Nutrition • Animals can be grouped in lots of different ways based upon their characteristics. Classification,	**Reactivate**: Can children work in groups of 4 with a whiteboard to think of what they know about living things? **Teach 1** What makes something living. Children touched on MRSGREN in earlier years but not in depth. Teach children of the definition of a living thing. Use ppt to briefly go over the MRS GREN (movement, respiration, sensitivity, growth, reproduction, excretion, nutrition) Show children images on the sorting cards. Use I do, we do, you do. Using MRS GREN model your thought process? Some of the pics should include misconceptions e.g • **Fire/flames**: although demonstrating many life-like characteristics (e.g., movement, use of oxygen to spread and grow, consuming things), fire is not living • **Leaves on the ground**: these used to belong to a living organism are now dead • **Seeds**: these are a bit trickier, as they are dormant, storing energy which they use to grow into plants (that are living) and acting as a stage in the lifecycle of that plant. So, they are not alive themselves, but neither are they non-living as they have the capability to grow when the conditions are right. • That was a way of grouping things. • Model how you might group living things in other ways e.g numbers of legs, habitats. Model how to use a venn diagram and a Carrol diagram. • With a partner, children generate as many criteria for sorting animals as they can and feed these back to the class. Record these for the children to refer to during the next activity. **Guided practice** Give children a selection of animals pictures can they sort them in different ways using their Venn diagrams. Challenge: have Venn diagrams and Carrol diagrams. **Independent application.**	• Animal cards • Powerpoint • Venn diagram template • Carroll Diagram template

		Children choose one way of sorting and write the animals on to a Venn diagram. Challenge: have Venn diagrams and Carrol diagrams. **Reflection** Do we know any ways that scientists have sorted animals into groups? Do they know mammal, reptile, bird, amphibian, fish?	
2. How can we sort living organisms?	• A classification key helps to sort living things. • A vertebrate is an animal that does have a backbone. • There are 5 groups of vertebrates. • An invertebrate does not have a backbone. Classification, classification keys, vertebrate invertebrate	**Reactivate** Which of the pictures are living things? Write a word for each of the letters in MRS GREN Name two ways we could sort the images. **Teach** • Explain that animals and plants are 2 types of living organism. The animal group can be further grouped according to features. This is called **classification**. • Introduce the classifications of vertebrate and invertebrate, asking children to give examples of each. • Explain how animals are split into 2 main groups: vertebrates and invertebrates. The vertebrates can be further split into five groups: amphibians, birds, fish, mammals and reptiles, which they have learned about previously. Can they remember any of the characteristics? • Teach that a **classification key** is a set of questions about the characteristics of the living things which enables you to sort things. The more detailed the questions or criteria, the more refined your sorting will be. • Show an example and model how to use it. **Guided practice**. • Children sort photos of animals based on a classification key. **Independent activity**. Use the template to generate 4 questions to sort the vertebrate. **Reflection** One child choses an animal from the grid. The other team can ask them up to twenty questions about the animal but the volunteer can only answer with a 'yes or no'. If the other team are able to guess the	• Classification template • Pictures of vertebrate

		animal within 20 questions, they win a point. If they cannot, the team of the volunteer win a point. The team with the most points after three rounds wins.	

3. How is a living thing suited to its habitat?
(may need two sessions if going outside or separate plant lesson)
	• Plants and animals rely on their habitat to give them everything they need.
	• Animals often adapt over time to suit conditions
	
	environment,
	habitat,
	adaptation
	adapt
		Reactivate
		1. Write down 3 questions that could be used to sort vertebrates.
		2. In yr 2 we learned about habitats. What can you remember. With TP jot down 3 things on a whiteboard. Add to another group, have you got the same? Different?
		
		Teach
		• Give the definition of a habitat? A **habitat** is a place or environment where an organism lives naturally. There are a huge variety of habitats, including forests, grasslands, deserts, mountains, polar regions and aquatic habitats (including both saltwater and freshwater).
		• What habitats have we got in the school grounds? Discuss micro habitats.
		• What other habitats can you think of that are not in our school grounds? (In Yr2 they learned about deserts, polar, oceans, rainforests, pond)
		• What does a habitat need to provide?
		  • **Shelter**
		  • **Water**
		  • **Food**
		  • **Space**
		
		Animals and plants adapt to become suited to their environment- animal adaptations include body parts/body coverings/behavioural adaptations. Give some examples. (teacher info: https://wildlifeinformer.com/animals-that-adapted/)
		Watch the clip of how animals have adapted to their habitats: https://www.bbc.co.uk/teach/class-clips-video/science-ks2--ks3-how-animals-have-adapted/z4y76v4
		
		Guided practice.
		I do/we do: Complete a grid with animal/habitat/adaptation
		
		Independent practice:
		Children record the facts about how each animal has adapted to its habitat.
			• Pictures of habitats
			• School grounds
			• Lenovos to take photos

		Reflection: Odd one out- which animal is in the wrong habitat. Multiple choice- how has the animal adapted to it's habitat?	
4. How are living things interconnected?	prey predator food chain producer consumer All the interactions between the variety of living things in a habitat create something called an **ecosystem**. Animals and plants have to adapt to changes in their habitat or may die.	**Reactivate:** How many habitats can you name? Show an animal explain to a partner how it has adapted to its habitat. **Teach** • Explain all the interactions between the variety of living things in a habitat create something called an **ecosystem**, where living things depend on each other to survive, providing food/shelter for each other. In Yr 2 children learned the basics of a food chain. You will need to introduce terms predator, prey, producer, consumer. • A simple example is a woodland ecosystem: Blackberries [are eaten by] caterpillars [are eaten by] shrews [are eaten by] owls (remind children about food chain work from earlier years). • **Interdependence** means that there is a balance in an ecosystem and if there is a change in the numbers of one species in an ecosystem this will have a knock-on effect on the other species. • If the population of caterpillars decreased, then the number of blackberries would increase, as less would be eaten. Shrews might reduce in numbers, having lost one source of food, and this could then affect the owl population. In some ecosystems a small change can have a large impact • Living things are entirely dependent on the state of their environment. They have to adapt to every change that occurs or else they will slowly die out. The strongest of species react to changes in their environment by adapting and evolving suitably, while some weaker species that are unable to adapt react by either migrating elsewhere or by going extinct. https://www.bbc.co.uk/teach/class-clips-video/science-ks2--ks3-the-connections-within-ecosystems/zmndxyc **Guided Practice** Explore the different food chains that can be made on the game & introduce the vocabulary. https://www.bbc.co.uk/bitesize/topics/z6wwxnb/year/z63tt39	• Lenovos • Animal cards to create food chains. • Vocab cards: prey predator food chain producer consumer

		Children could use Lenovos if it works on them to play the game independently. **Independent practice** 1. Create a food chain/web in pairs using the picture of plants and animals/birds- label each one with the correct vocab. 2. Complete the sentences about the effect of removal or reduction of one element of the ecosystem. Give children the highlighted vocabulary E.g. *Removal or reduction in the population of a particular organism in a food web can have a significant impact. For example, an animal may not be able to survive if they lose a significant part of their diet.* **Reflection:** Are the food chains/webs correct? i.e. predator at the top What would happen if x is removed?	
5. How do seasons affect living things?	Habitats can change with the season, making it harder to find food, water, shelter. Some animals migrate or hibernate to survive. environment, habitat, positive, negative, migrate, hibernate	**Reactivate** Which animal is the consumer/producer/prey/predator in these food chains? What are the seasons in the UK? Which months? **Teach** Show picture of range of living things in their own **environments**. What is different about these environments? What makes x animal suited to its environment? Check for understanding of habitat and adaptation as changes over long period of time. Do habitats stay the same all year round? What changes would there be to our school ground habitats? Woodland/a tree/pond/wild flower meadow What is the impact of seasons on the animals living there? Children share their ideas. Ensure they know the order of the seasons. Add to their ideas from each class clip Winter start at 52 secs https://www.bbc.co.uk/teach/class-clips-video/science-ks1-ks2-winter-weather-behaviour-british-animals-plants/zbcg92p autumn https://www.bbc.co.uk/teach/class-clips-video/science-ks1-ks2-animals-preparing-winter-storing-food-migrating-hibernating/z6h6nrd	• Facts on strips/cards • Animal pictures • Migration powerpoint

		spring https://www.bbc.co.uk/teach/class-clips-video/science-ks1-ks2-seasonal-changes-behaviour-animals-growth-cycle-plants/zfynvk7 summer https://www.bbc.co.uk/teach/class-clips-video/science-ks1-ks2-how-summer-weather-affects-behaviour-of-british-animals-plants/zkdkjhv Explain the link with **hibernation** and **migration** and give examples of birds/animals that hibernate/migrate. (Small mammals, such as chipmunks, dormice, hamsters, hedgehogs and bats. Also, many insects, amphibians and reptiles hibernate) Migration powerpoint – Uk animals and birds- cod, swallows, osprey, common toad, pipistrelle bats, cuckoos **Guided practice.** Give children the facts to sort into seasons in pairs. Quiz each other on which facts match to which season. Challenge- add in the types of animals and birds which the facts apply to. **Independence** Explain how living things respond in each seasons using sentence stems and key vocabulary. **Reflection** True or false statements about the seasons/migration/hibernation	
6. How and why does the environment change?	• Changes to an environment can be natural or caused by humans. • End of unit assessment. Changes to an environment can have positive as well as negative effects. • Human made Deforestation/ Pollution/urbanisation/	**Reactivate** Name a change that impacts living things in each season. Which animals hibernate/migrate? Why do they do this? **Teach** Teach children about human and natural change other than seasons to build on previous lesson. (additional resources http://www.monkwickjunior.co.uk/wp-content/uploads/2020/04/Year-5-Summer-Week-4-Science-Lesson-1-Changing-Environments.pdf) Introduce the terms: Pollution/deforestation/urbanisation/intensive farming/introduction of invasive species as having a negative human impact and introducing nature reserves as a positive.	• Grid with: photo/Habitat/human or natural change/impact on wildlife

	the introduction of new animal or plant species to an environment/ creating new nature reserves • Natural Earthquakes/storms/ floods/droughts/ wildfires/the seasons environment, habitat, human impact, positive, negative, damage destroy sustain	Natural impacts- Earthquakes/storms/ floods/droughts/wildfires/the seasons. **Guided practice** Match the photo/Habitat/human or natural change/impact on wildlife Quiz each other on the terminology and impacts. **Apply** Children have photos of negative environmental change What kind of habitat? What is happening? Why is this bad for the environment? **Reflection** What can humans do to have a positive impact on the environment? Write on post it notes to generate a list of ideas. https://www.bbc.co.uk/teach/class-clips-video/science-ks2--ks3-human-impact-on-the-environment/zf9nvk7	
7. Assessment		**LBQ living things an habitats** **Challenge or extra lesson:** Use the internet to find out about other UK species affected by climate change, and fill in the table. One has been done as an example. To help, visit this website: https://www.wwf.org.uk/updates/9-uk-species-affected-climate-change Name Habitat Current population Threat Appearance http://www.charlesdickens.southwark.sch.uk/perch/resources/year-4-science-biodiversity-5.pdf	

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