Subject: Science
Year4: Classification and changing habitats
NC/PoS:

- 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.

Prior Learning (what pupils already know and can do)
Know that living things all use the following processes: movement, respiration, sensitivity, growth, reproduction, excretion and nutrition. Name a variety of common wild and garden plants, including deciduous and evergreen trees. Name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Describe and compare the structure of a variety of common animals: fish – have a backbone, gills and fins; amphibians – have moist, skin that absorbs water and oxygen; reptiles – have tough scales and lungs for breathing air; birds- light skeletal system and muscles to help it fly: mammals- have hair or fur, females produce milk for their young. Name a variety of plants and animals in their habitats. Know the four seasons and be aware of seasonal changes.

End Goals (what pupils MUST know and remember)

- Know examples of how living things can be grouped – invertebrates (no backbone) vertebrates (have a backbone) and plants can be classified into flowering and non-flowering plants
- Know how to use a classification key to help group, identify and name a variety of living things – e.g. Can it fly, does it crawl, does it belong in…
- Know how to identify invertebrates (annelids, sponges, echinoderms, insects, molluscs, crustaceans, arachnids) and vertebrates (amphibians, birds, fish, mammals, and reptiles)
- Know how environments can change and how it can potentially pose a danger to living things -global warming, litter, oil spill, chemical pollution, deforestation, and land development
- Know environments can change and have a positive effect – nature reserves, parks and gardens, community gardens and ponds

Key Vocabulary: vertebrate, invertebrate, backbone, molluscs, annelids, arachnids, crustaceans, echinoderms and insects, classification key, antennae, segmented body, woodlouse, centipede, beetle, flowering, non-flowering, algae, mosses, ferns and coniferous trees, grasses, shrubs, cereals and deciduous trees, negative, positive, global warming, litter, oil spill, chemical pollution, deforestation, land development, nature reserves, parks and gardens, community gardens, ponds

Session 1:
Use Kapow lesson 1: Grouping living things: Vertebrates and invertebrates
Recap and recall: Revisit living things all use the following processes: movement, respiration, sensitivity, growth, reproduction, excretion and nutrition.
Revisit comparing the structure of a variety of common animals: fish – have a backbone, gills and fins; amphibians – have moist, skin that absorbs water and oxygen; reptiles – have tough scales and lungs for breathing air; birds- light skeletal system and muscles to help it fly: mammals- have hair or fur, females produce milk for their young.
Revisit plants and animals in their habitats.
LO: To group animals in various ways.
Working Scientifically LO: To record data in different ways.
Children learn that vertebrates have a backbone and include fish, amphibians, reptiles,

birds and mammals. Invertebrates include snails and slugs (molluscs), worms (annelids), spiders (arachnids), crustaceans, echinoderms and insects. As suggested in the lesson plan, children sort invertebrates and vertebrates using Carroll and Venn diagrams and record in floorbook.

Vocabulary: vertebrate, invertebrate, backbone, molluscs, annelids, arachnids, crustaceans, echinoderms, sponges and insects

Session 2:
Use Kapow lesson 2: Grouping living things: Plants
Recap and recall: Revisit names of common wildflowers – dandelion, forget-me-not, daisy; garden flowers – rose, fuchsia, geranium; deciduous trees – ash, oak, beech, silver birch; evergreen trees- pine, spruce, cedar
LO: To group plants in various ways.
Working scientifically LO: To apply and create classification keys.
Follow the lesson plan but in the main activity section create a class pictogram for the floorbook, not individual ones.
The main focus of the lesson is to create the classification keys. Leaves can be collected, but to save time there are printed leaves that can be used within the lesson resources.
Vocabulary: flowering, non-flowering, algae, mosses, ferns, coniferous trees, grasses, shrubs, deciduous trees

Session 3:
Use Kapow Lesson 3: Classification Keys
LO: To make careful observations.
Working Scientifically LO: To make and use classification keys.
Recap and recall: Name and identify different vertebrates and invertebrates. Ask:

- **How did you decide it was a vertebrate?** (It has a backbone.)
- **How did you decide it was an invertebrate?** (It does not have a backbone.)

Do the attention grabber, but to save time place the Bird pictures around the classroom.
Complete the Main Event to identify the different birds and complete an A3 copy of the Bird Identification Sheet for the class floorbook.
If possible complete the invertebrate classification activity outside as suggested, but this could be done on large sheets of paper in class and photographed for the class floorbook.

Session 4:
Use Kapow lesson 4: Habitats and seasonal change
LO: To recognise and describe different habitats and their inhabitants.
Working Scientifically LO: To gather, record, classify and present data.
Play the Recap and Recall game to classify vertebrates
Use the Attention Grabber section of the lesson.
Do not do the Main Event activity. Instead, recap and recall how habitats change throughout the different seasons and in pairs children complete the 'Seasonal Changes' activity- stick an example of a completed sheet in the class floorbook. During the discussion, make sure the following points are covered:

- Animals hibernating, migrating and mating.
- Animals storing food or animals feasting.
- Eggs hatching.
- Trees losing leaves, leaves budding and leaves changing colour.
- Plants flowering.
- Fruits ripening or seeds and nuts forming.
- Temperature and daylight changes.

In their books, children choose an animal and explain how seasonal change affects that animal's habitat, the dangers it poses to the animal and how the animal adapts to survive. Teacher to model an example first (could get ideas from the dormouse story provided in the plans).
Vocabulary: seasonal change, observe

Session 5:
Use Kapow lesson 5: Human impacts on habitats
LO: To recognise the impact humans can have on habitats.
Recap and recall: The features of the 4 seasons and how animals respond and adapt.
Complete the Attention Grabber but keep up the pace and move on to the Main Event section so they can start their group research (need iPads).
Children learn environments can change and potentially pose a danger to living things - global warming, litter, oil spill, chemical pollution, deforestation and land development.
Environments can change and have a positive effect – nature reserves, parks and gardens, community gardens and ponds
Can use ypte.org.uk Living things and their habitats for extra images if needed.

Vocabulary: conservation, deforestation, endangered, habitat, human impact, pollution

Session 6:
Use Kapow lesson 6: Natural changes to habitats
LO: To recognise the impact of natural disasters on habitats.
Recap and recall: Actions that can be taken to protect habitats.
Follow the Attention Grabber and Main Activity sections, but focus more on understanding the effects of an earthquake/flood than the activity itself (you do not need to repeat multiple times as suggested unless you feel the children need to deepen their understanding)
Complete the end of unit assessment activity.
Vocabulary: wildfire, earthquake, flood, waterlogged

Link to career: environmentalist, vet,
https://pstt.org.uk/application/files/2416/2851/6687/Veterinary_surgeon_-_Dr_Kelly_Blacklock.pdf
https://pstt.org.uk/application/files/7716/4942/8554/Biologist_-_Robyn_Grant_v2.pdf

Scientists who have helped develop understanding in this field: Carl Linnaeus