



Knowledge and Skills Mind Map (Science) - Year 4 Autumn Term 1

Knowledge - 
Skill - 

1. Can I ask questions and recognise that living things can be grouped in different ways?

- **Prior learning (Y3 topics):** Plants, animals/humans, rocks, light, forces/magnets
- **Vocab:** living, group, characteristics
- Know that living things can be grouped in different ways based on their characteristics.
- Know that characteristics are features of living things, (e.g. having legs, wings, fur or living in water).
- Know that grouping helps scientists to organise and understand similarities and differences between living things.
- Know that there is more than one way to group living things depending on the characteristics chosen.

(note for teachers – suggested task: provide images or real examples of animals and plants and ask children to group them in their own way (e.g. by habitat, number of legs, type of body covering), then explain their reasoning.)

- **Identifying differences, similarities or changes related to simple scientific ideas and processes**
- **Ask relevant questions and use different types of scientific enquiries to answer them**

2. Can I identify and classify animals as vertebrates or invertebrates?

- **Prior learning (last lesson):** recognised living things can be grouped
- **Vocab:** vertebrate, invertebrate, backbone
- Know that living things can be grouped based on shared characteristics.
- Know that animals can be classified as vertebrates (with a backbone) or invertebrates (without a backbone).
- Know that the presence or absence of a backbone is a key characteristic used to group animals, (e.g. a fish is a vertebrate and a spider is an invertebrate).
- Know that careful observation of features helps us to decide how to classify animals.

(note for teachers – suggested task: provide a variety of animal images and ask children to sort them into two groups, then introduce the scientific terms vertebrate and invertebrate and discuss how their groupings compare.)

- **Identify differences, similarities/changes related to simple scientific ideas and processes**

3. Can I classify living things using observable characteristics?

- **Prior learning (last lessons):** classified animals as vertebrates/invertebrates
- **Vocab:** classify, characteristics, features
- Know that living things can be classified into groups based on their observable characteristics.
- Know that characteristics are features that help us identify and group living things, (e.g. number of legs, type of body covering, habitat).
- Know that classification involves sorting living things into groups based on similarities and differences.
- Know that different characteristics can be used to create different groupings of living things.

(note for teachers – suggested task: provide a wider range of living things (animals and plants) and ask children to group them using different criteria (e.g. habitat, number of legs, diet), then discuss how and why their groupings changed)

- **Identifying differences, similarities or changes related to simple scientific ideas and processes**

Living things and their habitats

6. Can I explain how changes in the environment can affect living things?

- **Prior learning (last lesson):** habitats and how environments change
- **Vocab:** impact, survival, environment
- Know that changes in the environment can have positive or negative effects on living things.
- Know that some environmental changes are caused by humans, (e.g. building, littering, deforestation) and some occur naturally.
- Know that environmental changes can sometimes pose dangers to living things by affecting their habitat and resources.
- Know that evidence can be used to explain how living things are affected by changes in their environment.

(note for teachers – suggested task: provide case studies or images (e.g. litter in a habitat, creation of a park or pond) and ask children to discuss whether the changes are positive or negative and explain how living things are affected.)

- **Using straightforward scientific evidence to answer questions or to support their findings**

5. Can I explain what a habitat is and how environments change over time?

Prior learning (last lesson): classification keys to identify living things

Vocab: habitat, environment

- Know that a habitat is the natural place where a living thing lives and that it provides the conditions needed for survival.
- Know that different habitats provide different conditions, (e.g. a pond habitat has water while a woodland habitat has trees and shade).
- Know that environments can change over time due to natural or human causes.
- Know that changes in a habitat can affect the living things that live there, (e.g. lack of water or changes in temperature).

(note for teachers – suggested task: show images of different habitats across seasons or before/after human changes (e.g. deforestation, building), and ask children to identify what has changed and how this might affect the living things there.)

- **Identifying differences, similarities or changes related to simple scientific ideas and processes**

4. Can I use and create simple classification keys to identify living things?

- **Prior learning (last lessons):** grouped and classified animals
- **Vocab:** key, identification, question
- Know that a classification key is a tool used to identify living things by answering a series of questions about their characteristics.
- Know that classification keys use simple yes/no questions to help group and identify living things, (e.g. "Does it have wings?").
- Know that classification keys work step by step to narrow down options and reach an answer.
- Know that creating a classification key helps us organise information about living things clearly.

(note for teachers – suggested task: provide children with a set of animals and a simple branching key to follow, then guide them to create their own key using yes/no questions to identify a small group of living things.)

- **Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions**
- **Record using keys**