Year 4— Science- Living things

Spring Knowledge Organiser

HeathfieldSchools'Partnership

This Science unit follows on from previous studies of living things in Years 1, 2 and 3. This unit will deepen the children's understanding of what makes plants and animals living things and how different groups of animals are classified. The children will learn that species' characteristics are what make them similar and different to others, and they will use Venn diagrams and Carroll diagrams to group animals. Additionally, the children will use classification keys to identify the characteristics of living things. Finally, they will discover that habitats change due to natural or human causes and they will consider the positive and negative impacts on habitats.

Key knowledge

- Living things are animals or plants and do the seven life processes. They may do them differently: Movement, Respire, Sensitivity, Growth, Reproduction, Excretion, Nutrition.
- Animals are divided into two groups: vertebrates and invertebrates.
- Vertebrates:

⇒ Fish

⇒ Amphibians

⇒ Reptiles

⇒ Birds

⇒ Mammals

- Invertebrates:

⇒ Insects (3 body sections, 6 legs)

⇒ Arachnids (2 body sections, 8 legs).

⇒ Molluscs (slimy foot, often has a shell).

Key Vocabulary

Movement—animals move from place to place, plants grow and turn towards the light.

Respire—animals breathe oxygen through mouths/noses/gills. This oxygen is used for respiration. Plants absorb oxygen from air and release carbon dioxide. .

Sensitivity—detect changes in surroundings. Animals use senses to see, hear, taste, touch and smell. Plants can also detect changes. .

Growth—animals grow from babies to adults, seeds grow into plants.

Reproduction—animals have young, either eggs or live birth. Plants produce seeds.

Excretion—Remove excess gas and water. Animals excrete waste in urine and faeces, excess gas leave plants from leaves. .

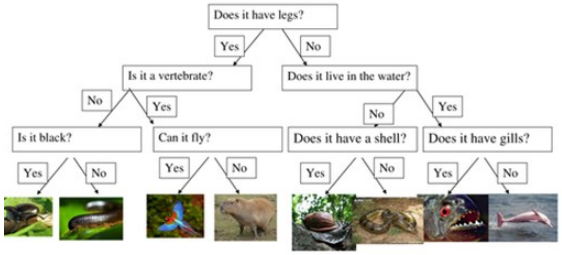
Nutrition—animals eat food to provide energy to live and green plants use sunlight to make their own food.

Vertebrates—animals with a backbone.

Invertebrates—animals with no backbone

Classification keys—used to identify living things by looking at their characteristics.

- All living things have a unique set of characteristics, what makes the species similar or different to other species.
- Classification keys use yes or no questions to classify living things.



- Environments change and this can be dangerous for the living things in that area.
- Natural changes: seasons and weather. Winter brings less plant life, no leaves on deciduous trees and hibernation.
- Human changes: the impact humans have on habitats, deforestation, littering, pollution, recycling, conservation projects.

Key questions

- What are living things/organisms?
- What are the seven life processes that all living things need to do? How do animals do all these life processes? How do plants do all these life processes?
- What are the two main groups that animals can be divided into?
- What is a vertebrate?
- What groups of animals are vertebrates?
- What are the main characteristics of fish? Can you think of any examples of a fish?
- What are the main characteristics of amphibians? Can you think of any examples of an amphibian?
- What are the main characteristics of reptiles? Can you think of any examples of a reptile?
- What are the main characteristics of birds? Can you think of any examples of a bird?
- What are the main characteristics of mammals? Can you think of any examples of a mammal?
- What is an invertebrate?
- What groups of animals are invertebrates?
- What are the main characteristics of insect? Can you think of any examples of an insect?
- What are the main characteristics of arachnid? Can you think of any examples of an arachnid?
- What are the main characteristics of molluscs? Can you think of any examples of a mollusc?
- How can you group animals?
- What are classification keys or branching databases used for?
- How do you create a classification key or branching database?
- How do you use a classification key or branching database?
- Can you name some examples when natural changes may have an effect on a habitat?
- Can you name some examples when humans have a negative impact on a habitat?
- Can you name some examples when humans have a positive impact on a habitat?

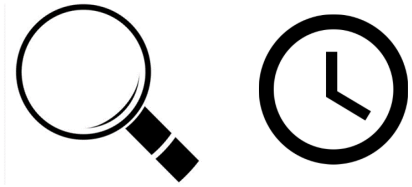
Science – Enquiry Approaches
Knowledge Organiser

Heathfield Schools' Partnership
ambitious for the future

Scientific enquiry approaches are part of our science curriculum and are the different ways that we can carry out scientific investigations.

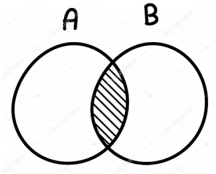
Observing over time

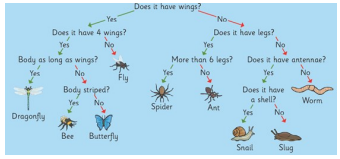
- Use different senses.
- Observe changes over different periods of time.



Identifying and classifying

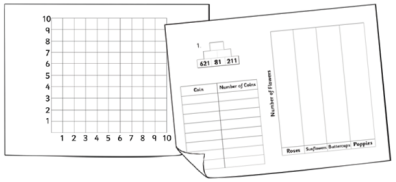
- Naming and grouping.
- Making connections, looking at similarities and differences.





Pattern seeking

- All variables cannot be controlled.
- Look for relationships between variables



Fair testing

- All variables are controlled.
- What you change is in **numbers**.

Researching

- When we cannot investigate in school.
- Books, an expert, the internet.

Comparative testing

- All variables are controlled.
- What you change is in **words**.