Year 6 Science Knowledge Organiser - Living things and their habitats

Knowledge: The 7 levels of classification

1. Kingdom
5 widely accepted kingdoms for classification - monera, protists, fungi, plants and animals.

2. Phylum
Divisions based on shared physical characteristics among organisms.

3. Class
Based on very important and more detailed similarities.

4. Order
Based on characteristics listed on a taxonomy key.

5. Family
Groups of organisms that share certain adaptive traits. They have common ancestors.

6. Genus
A way to describe the genetic name for an organism.

7. Species
The scientific name given to a living organism.

Example of classification of human
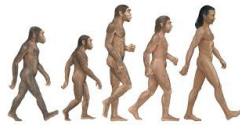**Kingdom -** Animalia
Phylum - Chordata
Class - Mammalia
Order - Primate
Family - Hominidae
Genus - Homo
Species - Sapiens

Example of classification of buttercup
Kingdom - Plantae
Phylum - Angiospermophyta
Class - Eudicotidae
Order - Ranunculales
Family - Ranunculacae
Genus - Ranunculus
Species - Acris

Linnaeus Classification

1. Carl Linnaeus was a Swedish scientist who believed it was very important to have a system of classification.

2. Linnaeus collected and examined over 40,000 specimens of plants, animals and shells. In 1735, he published his first edition of 'Systema Naturae', which described his system for classifying living things.

3. Over the next several years, Linnaeus continued to publish new editions of 'Systema Naturae'. His tenth edition was published in 1758 and is considered to be the most important edition.

4. He proposed that there were three large groups, called kingdoms, into which the whole of nature could fit. These kingdoms were plants, animals and minerals. He then split each kingdom into smaller and smaller groups, or levels.

5. Today, the Linnaean system is only used to classify living things, so it does not include minerals. As new living things have been discovered, scientists have had to add additional levels in the hierarchy. A new level above kingdom, called domain, has also been introduced.

Vocabulary

1. MRS GREN	Remember from year 4 and 5. It means all the necessary features of living things - **M**ovement, **R**espiration, **S**ensitivity, **G**rowth, **R**eproduction, **E**xcretion and **N**utrition.
2. Linnaeus	Swedish botanist - see fact file.
3. Species	Group of organisms consisting of similar individuals capable of exchanging genes or interbreeding.
4. Environment	Surroundings or conditions in which a person, animal or plants lives or operates.
5. Classification	Action or process of classifying something through questions.
6. Lobed	A leaf having deeply indented margins.
7. Compound leaf	A leaf consisting of several or many distinct parts (leaflets) joined to a single stem.
8. Leafage	Main organ of photosynthesis.
9. Leaflet	Leaf like part of a compound leaf.
10. Veins	Vascular tissue of a leaf located in the spongy layer.
11. Waxy leaf	Leaf that has a waxy covering. It is composed of cutin, a hydroxy fatty acid.
12. Sepals	Leaf shape structure found on flowering plants.
13. Habitat	A natural home or environment of an animal, plant or other species.

Did you know… that Linnaeus classified humans among the primates, which brought him much criticism at the time!

Micro-organisms

Micro-organisms are very tiny living things. They are not visible to the naked eye and are found all around us. They are found in our bodies, in the air, in water and on objects all around us. Some micro-organisms are positive and others are negative.
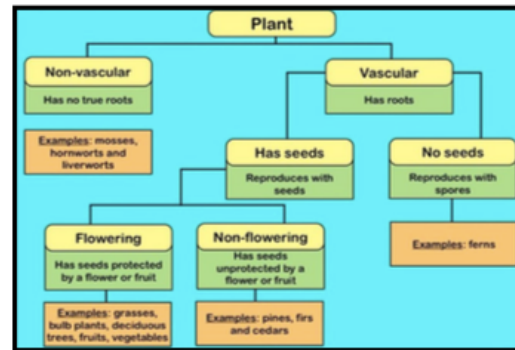
Positive micro-organisms
1. Bread and drink making
2. Production of dairy products
3. Making steroids (medicine)
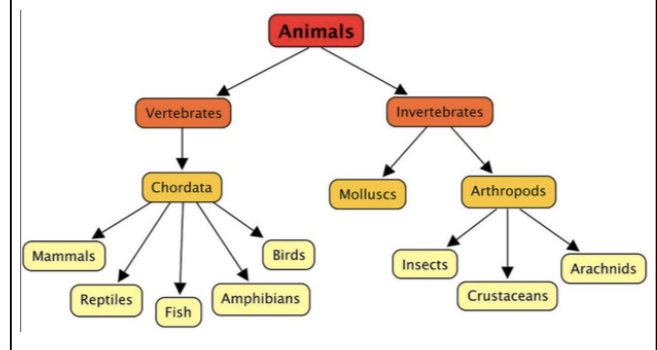4. Helping in sewage treatment plants

Negative micro-organisms
1. Causes viruses
2. Gives people malaria fever
3. Causes rush disease in plants
4. Damages apples (fruit rot)

Can you explain the classification key of animals?

## Can you explain the classification key of plants?

Year 6 Science Skills Knowledge Organiser - Living things and their Habitats

Key Concepts and what they mean

| 1. Physics	Physics is the study of energy and matter in space and time and how they are related to each other.
2. Chemistry	Chemistry deals with the properties of substances, the transformations they undergo, and the energy that is released or absorbed during these processes. For example, when plants use sunlight to produce energy (or food for itself).
3. Data Collection	Data collection is the process of gathering and measuring information to answer a question. For example, recording living and non living things to investigate whether numbers change depending on the weather.
4. Cause and effect	Cause and effect is the relationship between events or things, where one is the result of the other or others. For example, the weather gets colder and there is less food around, so animals hibernate.
5. Envrionmental	Environmental relates to the environment around us at Old Fletton.

Food Web

A **food web** is a graphical model showing the many **food chains** linked together to show the feeding relationships of organisms in an ecosystem or habitat.
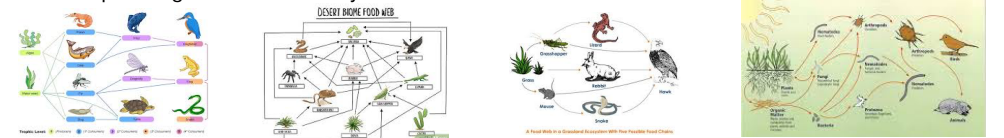
Steps to Success - Creating a Food Web

1. Choose a food web habitat, and list the plants and animals found there.
2. Put all the producers on the page - organisms that create their own food through photosynthesis.
3. Next, place your primary consumers on the page - creatures that feed and prey on producers.
4. Then, add your secondary consumers - these eat the producers or primary consumers.
5. Finally add the tertiary consumers - these prey upon secondary consumers, primary consumers and producers.
6. Now, draw arrows between organisms indicating the transfer of energy.
   The arrows must start with what is being eaten and move / point to the animal doing the eating.
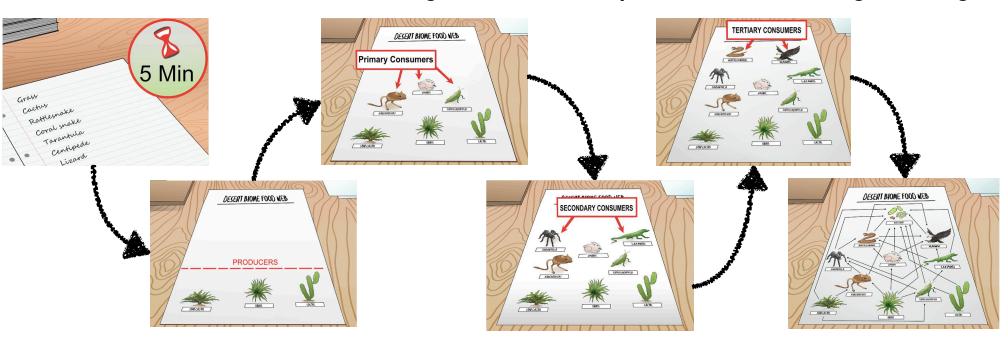
Literacy links to this topic

Stories that relate to the topic of 'Living things and their Habitats' are:

Charlotte's Web by EB. White
Hetty Feather by Jacqueline Wilson

These stories help you to gain a greater understanding of living things and their habitats and may spark some questions that you might want to ask in your next science lesson!

Classification Keys

A classification is a series of yes, no questions that help you determine unknown items or living things.
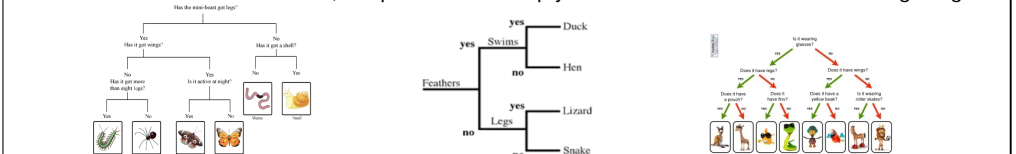
Steps to Success - Creating a Classification Key

1) Lay out all the living things and look at their features

2) Think of a question - yes or no - that will sort all the living things into two piles. For example 'Are they in the plantae kingdom?'

3) Write down the question at the top

Are they in the plantae kingdom?
Yes   No

4) Think of another question - yes or no - that will further sort each pile into two. For example 'Does it have a lobed leaf?' and 'Is it a helpful microorganism?'

5) Write down the question under the last yes or no answer.

6) Put the picture under the correct answer

7) Recheck to make sure the classification works

Are they in the plantae kingdom?
Yes   No
Does it have a lobed leaf?   Is it a helpful microorganism?
Yes   No   Yes   No