Knowledge Organiser – Rainforests and Biomes (Year 4)

Key Vocabulary

Biome	A **biome** is a large region of the world with places that share a similar climate and are home to similar vegetation and animals that have adapted to live in those conditions.
Climate	**Climate** is the long-term weather patterns of a region. Climate is measured in terms of average seasonal precipitation (rain or snowfall), maximum and minimum temperatures, hours of sunshine, levels of humidity and the frequency of extreme weather events over a given period.
Deforestation	**Deforestation** is an area where all the trees are cut down or destroyed.
Tropics of Cancer	The **Tropics of Cancer** is a line around Earth which marks the northern boundary of the tropics.
Tropics of Capricorn	A **Tropics of Capricorn** is a line around Earth which marks the southern boundary of the tropics.
Vegetation	**Vegetation** are plants associated with a particular area of habitat.

Boreal forest – other than the oceans, boreal forest is the world's largest biome. They are found in northern latitudes between tundra and temperate forests in arctic and polar climates (Siberia, Canada, Alaska, Scandinavia and Japan). Pine, spruce, larch and fir can survive the extreme winters alongside moose, caribou, beavers and bears.

Tropical Rainforests – found in the equatorial climate zone and consist of broad layers. Tropical rainforests are located in the Amazon region in South America, the Congo basin in West Africa and Southeast Asia.

Tundra – the world's coldest biome, located in the arctic or polar climate zones (North Canada, Scandinavia and Russia). Few plants can survive except for grasses, lichens and mosses. The Arctic fox, wolves, reindeer, hares and lemmings have adapted to live here.

Temperate deciduous forest – found in the temperate climate zone in eastern North America and most of Europe, China and Japan. Broad-leaved deciduous trees and evergreen forest grow and provide habitats for bats, squirrels, foxes, badgers, centipedes and beetles.

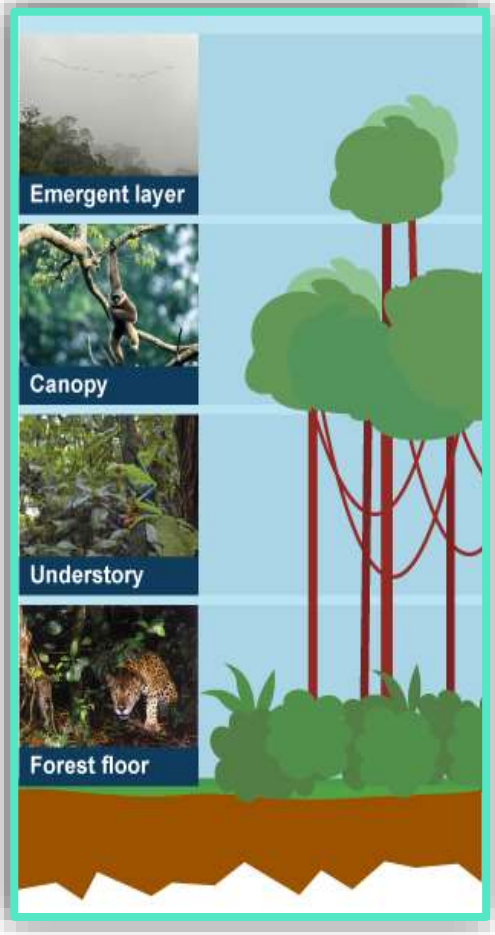
Hot desert – based in the desert climate zone (Sahara, Gobi, Namib, Kalahari, Atacama and Australia). This biome has extremely sparse vegetation with lizards, snakes, camels, rabbits and vultures.

Savannah – found in the tropical climate zone (Venezuela, Colombia, Zambia and Australia) and characterised by tall grasses; scattered trees and scrubs. Plants have long roots to keep them anchored and to obtain as much moisture from the soil. Elephants, lions, grasshoppers and termites can all be found here.

The Amazon is the world's largest tropical rainforest. It covers over 5.5 million square kilometres – it's so big that the UK and Ireland would fit into it 17 times!

Deforestation

Logging – Companies cut down trees for timber which is mostly sold to developed countries.
Farming – Land is cleared and planted with crops such as palm oil. It may alternatively be used for grazing cattle ranchers.
Mining – Land is completely deforested. Soil is removed with high pressure hoses and chemicals which pollutes local rivers.
Road building – Loggers and miners build roads to get their materials out.
Settlement – Land is being cleared for new homes and settlements.
Fuelwood – Many people rely on wood for their main source of fuel and as the



Layers of the Rainforest

The **emergent** layer of the rainforest is above the canopy, where the tallest trees grow. These trees receive the most sunlight but also need to weather high temperatures and strong winds. Animals living in this layer include butterflies, small monkeys and bats.

The **canopy** is the second highest layer of the rainforest at around 30-45 metres. The crowns of trees form a dense canopy, blocking out sunlight from lower layers and intercepting rainfall. The canopy contains the most plant species and is home to the most animal species, including birds, monkeys, reptiles and many insects.

The **understorey** level is quite open; dense patches of vegetation only occur near rivers or under openings in the upper storeys. The upper storeys block out the sun so light levels in the understorey are low. Plants have adapted to these low light levels in order to grow include smaller trees, ferns and climbing plants. Animals that live in this layer include birds, butterflies, frogs, snakes and a wide variety of insect species.

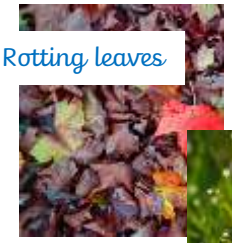
The **forest floor** is the lowest level of the rainforest. Very little light reaches the forest floor so plants grow slowly. The ground is covered with fallen leaves and rotten branches. When a tree falls and a patch of light appears, young plants grow very fast to fill the gap. This layer is home to jaguars, leopards, gorillas and elephants.

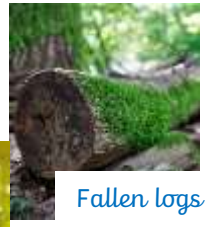
Knowledge Organiser – Habitats and Food Chains (Year 4)

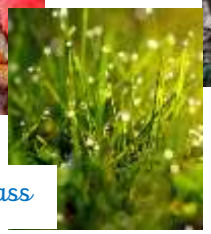
Habitats

A **habitat** is a natural environment that an animal lives in. A **habitat** provides animals with 3 important things: food, shelter and a safe place to raise their young. A habitat could be any of the following places.

A **micro-habitat** is a very specific, small home environment for plants, animals and insects. Examples include the following.


Rotting leaves


Fallen logs


Grass


A pond


Tree trunk

Life Processes

Even though they might be very different from each other, **all organisms** share certain characteristics. All living things do certain things to stay alive. These are called **life processes.** All animals, including humans, do these things. Plants do too, although they do them in different ways.

Movement: Animals move around to get from place to place. Plants grow and turn towards the light.

Respiration: All living things release energy from their food by respiration. Most organisms need oxygen to do this.

Sensitivity: Every living thing can detect changes in their surroundings.

Growth: Animals grow from babies to adults. Seeds grow into plants.

Reproduction: Animals have young. Plants produce seeds from which more plants grow.

Excretion: Waste products are removed from the body. Both plants and animals have to get rid of excess gas and water.

Nutrition: Animals eat food in order to get nutrients whereas plants produce their own food by turning sunlight into energy. This is called photosynthesis.

Key Vocabulary

Amphibian	Vertebrates (animals with backbones) which are able, when adult, to live both in water and on land.
Classification	The process by which scientists group living organisms.
Consumer	An animal that eats plants (producers) and other animals. They do not make their own food.
Habitat	A place where an organism makes its home.
Invertebrates	Animals without a backbone or bony skeleton. They either have a soft body or a hard outer casing covering their body.
Life cycle	A life cycle is the different stages of life for a living thing.
Organism	An organism is an individual animal, plant, or single-celled life form.
Predator	An animal that hunts, kills and eats other animals for food.
Prey	Prey is a term used to describe organisms that predators kill for food.
Producer	A plant that get its energy from the sun to make its own food.
Vertebrates	Animals that have a backbone inside their body.

Knowledge Organiser – Habitats and Food Chains (Year 4)

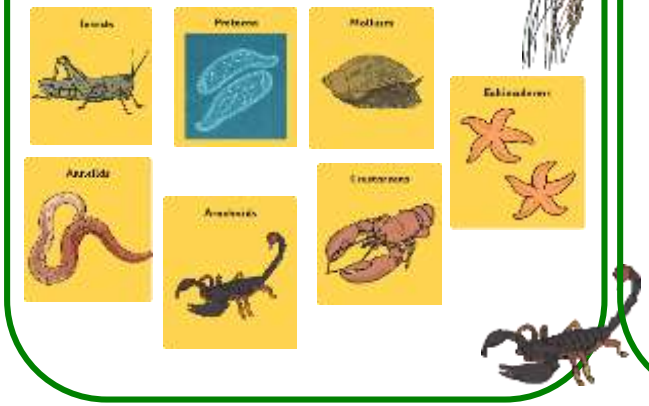
Vertebrates

Vertebrates are animals with a backbone. They have a hard skeleton made of bone. It holds their body up and gives them shape.

Vertebrates can be separated into 5 broad groups.

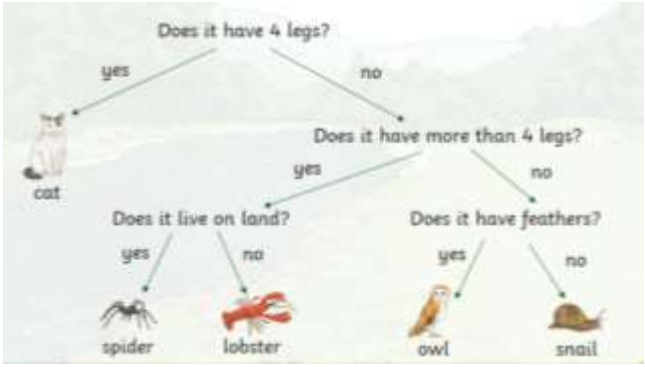
Invertebrates

Invertebrates do not have a backbone or a skeleton made of bones. Many have a hard shell outside their bodies to protect them. Others have soft, flexible bodies.



Classifying Organisms

Animals can be classified into different groups. We can use classification keys as a way of identifying living things through a series of questions based on their similarities and differences.



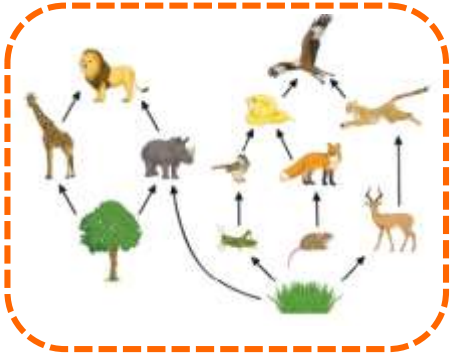
Food Chains and Food Webs

Food chains show how **energy** from the sun is used by animals in a chain from plants through to animals and even humans.

All food chains start with a **producer** which is always a green plant that converts the Sun's energy into food.

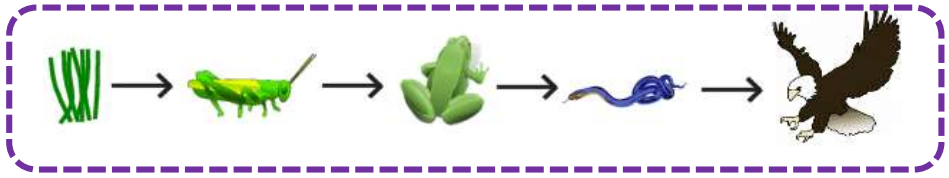
Animals then eat the **producer** and are called **consumers**.

Sometimes animals eat other animals. These are called **predators.**



A food chain shows how each living thing gets its food. It shows **who is eating who**. The arrow means "is eaten by".

is eaten by...



A food web shows the **many different paths** by which plants and animals are connected. A food web is **several food chains connected** together.