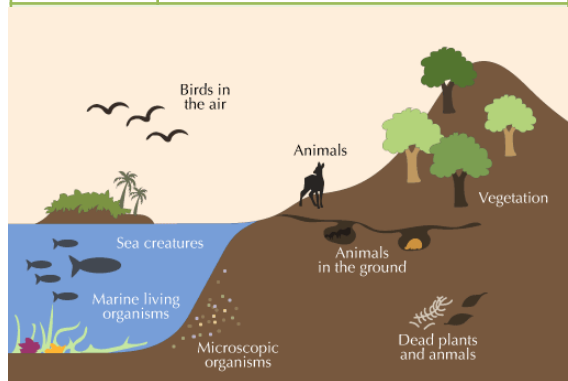


Distribution and characteristics of global ecosystems

Ecosystem	An ecosystem is a large community of living organisms (plants, animals and microbes) in a particular area. The living things and the environment affect each other
Distribution	Where things are or how they are spread out
Biome	A large community of plants and animals in a major habitat
Tropical	Biome with warm weather found between the tropical of Cancer and Capricorn
Temperate	Mild Climate. These areas are usually mid-way between the equator and the poles.
Equatorial climate	Biome around the equator with high temperatures and rainfall
Biodiversity	The number of different plants and animals in the world or in a particular habitat

The biosphere

Biosphere	The regions of the surface and atmosphere of the earth or another planet occupied by living organisms.
Resource	Something humans think is valuable or useful
Finite Resource	A non-renewable resource that can't be replaced naturally quick enough to keep up with consumption
Renewable Resource	Can be replaced or replenished faster than we use it
Exploitation	Using resources in order to benefit



The role of climate and local factors in influencing the distribution of large-scale ecosystems

Climate Factors

Latitude - Distance from the equator

Global Atmospheric Circulation - The large scale movement of air around the Earth. Moves heat around the world

Local Factors

Altitude - Height above sea level. For every 100 metres of height, temperatures decrease by roughly 1°C.

Prevailing wind - The direction of wind that blows most often. Winds blowing across oceans will bring moisture and rainfall, whereas winds blowing across warmer continents bring warm dry air

Soils - Different vegetation requires different soil types. Thinner soils such as in the Boreal forests contain less organic matter, and may be more acidic, whereas in the Tropical rainforest soils are more nutrient-rich because of the decaying litter layer

Distance from the sea - Land heats and cools faster than the sea. Therefore, coastal areas have a lower temperature range than areas inland. On the coast, winters are relatively mild and summers are cool. Inland, temperatures are higher in the summer and colder in the winter.

Ocean currents - movement of water from one place to another. Warm ocean currents warm the land and bring rainfall

Relief/Topography - Hills and mountains. Moist air is forced to rise and cool, forming precipitation.

Ecosystems, Biodiversity and Management

UK's main terrestrial ecosystems.

Terrestrial	On dry land
Moorland	Found in upland areas where rainfall levels tend to be high. Most of the UK's moorlands would have been covered by trees and shrubs. However, over time the moorlands of the UK have been heavily used as grazing land.
Heathland	Found in lowland areas of southern UK. Heathland forms on porous sandy soils. These lack fertility as nutrients can be easily washed out and the soil can be acidic.
Woodland	Some woodlands are dominated by deciduous broadleaved trees that lose their leaves in winter. Some woodlands are coniferous woods which have needle-like leaves.
Wetland	Wetlands include open waters, floodplains, rivers, streams and ponds. Most wetland environments contain waterlogged soils that are extremely fertile and so support a lot of vegetation.

Marine ecosystems

Aquaculture	The rearing of aquatic animals or the cultivation of aquatic plants for food
Over Fishing	Fishing so much that the fish can't reproduce fast enough to replace them

Deciduous forests

Hibernate	Spend the winter in a dormant state
Recreation	Activity done for fun. E.g. walking, cycling, bird watching
Pollarding	Cut off the top and branches of (a tree) to encourage new growth at the top
SSSI	A Site of Special Scientific Interest (SSSI) is one of the country's very best wildlife and/or geological sites
Sustainable forestry	The use and management of forests in such a way that their environmental, social, cultural, recreational and economic characteristics are preserved for future generations



Deciduous trees:

- have broad, flat leaves.
- drop the leaves seasonally.

Coniferous trees:

- have small, needle-like leaves.
- retain the needles year-round.

Deciduous - A tree that loses its leaves each year

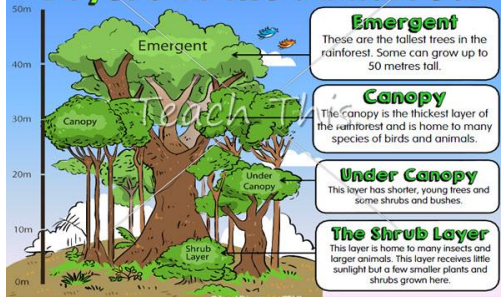
Coniferous - A tree that doesn't lose its leaves in winter and makes cones

Deciduous forests
No extreme temperatures. Range 4°C–17°C. Rainfall 1000mm per year. Moderate humidity. Good levels of sunlight in the summer, but shorter days in the winter. Growing season for around 7 months of the year. Good nutrient levels in the autumn when leaves fall to supply the soil.

The biotic and abiotic characteristics of tropical rainforest

Tropical Rainforest	A forest growing in tropical areas of heavy rainfall
Biotic	Living things such as plants and animals
Abiotic	Non living things such as rock or water
Stratified Layers	Vertical layers for example the rainforest has a number of layers, with different plants and animals adapted for life in that particular area (the emergent, canopy, understory and forest floor layers)

Layers of the Rainforest



How does biodiversity adapt to the environment?

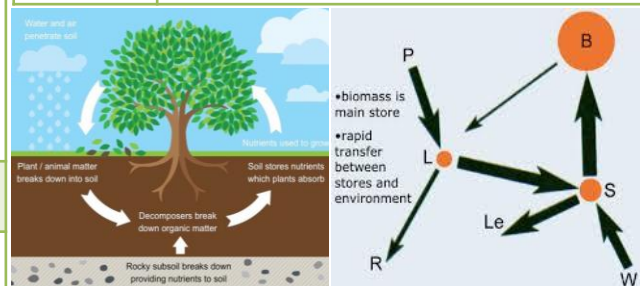
Buttress roots	Large, wide roots on all sides of a shallowly rooted tree. Found in nutrient-poor soils that are not very deep. Prevent the tree from falling and gather more nutrients.
Drip tips	Plants grow thick leaves with drip tips and waxy surfaces to allow water to drain quickly preventing rotting
Camouflage	A way of hiding something by covering or colouring it so that it looks like its surroundings
Epiphytes	A plant that grows on another plant. They get their nutrients from the air and water, not from the soil
Litter	Dead plant material (such as leaves, bark, needles and twigs) that have fallen to the ground.

The role of nutrient cycling

Nutrients	Compounds that are essential for organisms to grow and survive such as nitrogen, phosphorus and potassium
Nutrient cycling	The nutrient cycle nutrients around the ecosystem between the living and non-living environment. Example - deciduous trees lose their leaves, these fall to the ground, decompose and release the stored nutrients back into the soil. The trees will then take up these nutrients and use them again for growing.
The Gersmehl model	Used to represent where the nutrients are stored, how they move around the ecosystem and how they can exit or enter the ecosystem. The larger the circle, the larger the store of nutrients, and the larger the arrow the more nutrients there are in the transfer pathway. B=Biomass, L=Litter, P=Precipitation, R=Run-off, Le=Leaching, W=Weathering, S=Soil.
Soil	the upper layer of earth in which plants grow, made of a mixture of organic materials, clay, and rock particles.
Leaching	Removal of nutrients from soil by water as it moves downward through the soil
Decomposition	the breakdown of animals and plants by bacteria

The role of energy flows

Energy flow	The movement of energy around an ecosystem
Food chain	How energy is passed through an ecosystem – the primary producers such as plants get their energy from the sun, these are then eaten by primary consumers (herbivores), which are then eaten by secondary consumers (carnivores), which are then eaten by tertiary consumers. When an organism dies it is eaten by microbes and the nutrients are recycled.
Food web	A network of food chains is called a food web



The goods and services the rainforest provides

Good	Something you can physically hold in your hands, such as medicine, wood, food, minerals
Service	Something you can't hold in your hands, such as tourism or recreation, the hydrological cycle, large numbers of trees to prevent flooding or store carbon dioxide,
Carbon Sink	Anything that absorbs more carbon than it releases as carbon dioxide. The main natural carbon sinks are plants, the ocean and soil
Regulate climate	Reduces climate change by controlling temperature, water or greenhouse gases

The sustainable management of the tropical rainforest

Shifting cultivation - an area of ground is cleared of vegetation and used for farming for a few years and then abandoned for a new area until its fertility has come back

Sustainable management - Promoting conservation and management practices which are environmentally, socially and economically sustainable, and which generate and maintain benefits for both present and future generations

Governance – Management, control and decision making

Commodity value – The price something could be sold for

Ecotourism - Tourism that is designed to contribute to the protection of the environment or at least minimize damage to it

Ecosystems, Biodiversity and Management

Economic and social causes of deforestation

Social	Economic
Exploitation to reduce poverty	Logging – cutting down trees for sale as timber or pulp
Population pressure – (over 180 million people) since 1960 the government have wanted to open up the interior of the Amazon.	Mining minerals - extracting useful minerals from the surface of the Earth by digging or drilling
An opportunity for landless people to own their own plot of land.	Agriculture – farming, clearing the forest to make room for crops or farm animals
Expanding cities. Cities like Paraupebas have grown rapidly due to workers arriving to work in the iron-ore mines.	HEP – Hydroelectric power. Producing energy from fast flowing water turning turbines
	Ranching - the breeding and raising of cattle, sheep, or horses