

I should already know:

Development
Weather and climate
Locational knowledge

I will learn:

- What is an ecosystem and what are the different types?
- How have plants and animals adapted to different ecosystems?
- What is the rainforest and how can we protect it?
- What is the savanna and how can we protect it?
- What are the key features of a desert?
- What are the key features of a tundra
- The nutrient cycle

This will help in the future:

Resources (Y8)
The living worlds (Y9)
Tropical rainforests and hot deserts (GCSE)

Key Words

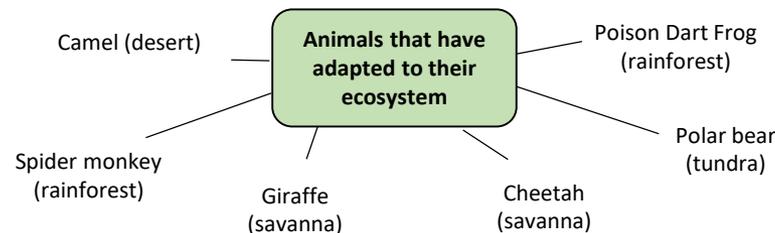
Rainforest	a luxuriant, dense forest rich in biodiversity, found typically in tropical areas with consistently heavy rainfall
Savannah	A grassy plain in tropical and subtropical regions, with few trees
Desert	Arid land with sparse vegetation
Tundra	A vast, flat, treeless Arctic region of Europe, Asia, and North America in which the subsoil is permanently frozen
Adaptation	Changing to suit the surrounding environment
Sustainability	Meeting the needs of today without harming the environment in the future
Desertification	The process where land gradually turns into a desert. It becomes drier, less fertile and vulnerable to erosion
Nutrient cycle	The movement of nutrients around an ecosystem.

Ecosystem: An area within which plants and animals interact with each other and their non living environment. They can be as small as a hedgerow or pond

Producer	→	Organisms that get their food from the natural environment (<i>photosynthesis</i>) e.g. vegetation
Consumer	→	Organisms that feed on other organisms (producers and consumers).
Decomposer	→	Decomposers (fungi, bacteria) feed on dead producers & consumers.
Food Chain	→	A food chain is a single line of linkages between producers and consumers. It shows what eats what.

Greater Depth Challenge

Identify an ecosystem near where you live and investigate the characteristics (microclimate, animals, vegetation, threats, sustainability)



Further Reading

'Ecosystems' – BBC Bitesize
Wildfire book by Rodman Philbrick

<p>Rainforest</p> <ul style="list-style-type: none"> • Location • Climate • Vegetation • Animals 	<ul style="list-style-type: none"> • Along the equator in central Africa (Nigeria, Congo), south-east Asia (Malaysia, Indonesia), north Australia and South America (Brazil, Peru). • Humid (hot & wet). The average daily temperature is 28°C. It receives at least 2000mm of rain each year. There are no real seasons. • Very dense vegetation. There are over 1,000 different types of trees including hardwoods such as mahogany and greenheart. There are four layers of vegetation in the tropical rainforest. The vegetation has had to adapt, in order to survive with the constant high temperatures and the heavy rainfall. • Millions of species (e.g. jaguar, alligator, monkeys, apes). It is believed that in the Amazon Rainforest there are over 2,000 species of birds and 1,500 species of fish. There is also thought to be 50,000 kinds of insects in a single square mile. Animals have to adapt to survive in the rainforest (see adaptations section). 	
<p>Savanna</p> <ul style="list-style-type: none"> • Location • Climate • Vegetation • Animals 	<ul style="list-style-type: none"> • The savanna ecosystems is located between the rainforests found at the equator and deserts found along the tropic lines. More precisely, they are located between 23.5° north and 23.5° south of the equator. • The savanna has two seasons: a wet season and dry season. Its annual precipitation is between 100-150cm of rain. The temperature is warm throughout the year, with a temperature range between 25°C to 30°C across the year. • The main type of vegetation is grass, which grows very tall. There are also occasional scattered trees such as the Baobab tree and Acacia tree. These have adapted to survive in the savannah. • Lots. Most are fast with strong legs (zebra, giraffe). There are many herbivores due to the high amount of grass, however carnivores (lions, cheetahs) are also found in the savannah due to the high number of herbivores. 	
<p>Desert</p> <ul style="list-style-type: none"> • Location • Climate • Vegetation • Animals 	<ul style="list-style-type: none"> • Near the Tropic of Cancer and Tropic of Capricorn at 23.5° north and 23.5° south of the equator • Arid (hot with very little rain). The average temperature is 40°C in the day and average annual rainfall is 250mm. • Sparse (e.g. cactus, Joshua tree) • Very few. Scorpions have adapted 	
<p>Tundra</p> <ul style="list-style-type: none"> • Location • Climate • Vegetation • Animals 	<ul style="list-style-type: none"> • North (arctic circle) and south poles • Very cold, very dry, soil is permanently frozen (permafrost). Winters are cold, dark and long, with an average temperature is -30°C. In mid-December it is dark all day. In the summer temperatures vary between 0-10°C. • Sparse – usually small bushes and flowers. The top layer of soil only thaws during 2-3 months in the summer. • Few (e.g. penguin, polar bear). 	

The Malaysian Rainforest is suffering from deforestation

<p>Causes of deforestation</p> <ul style="list-style-type: none"> • Cattle farming • Palm oil production • Logging • Mining • Hydro-electric power 	<p>Sustainable solutions</p> <ul style="list-style-type: none"> • Selective logging • Afforestation • National parks • Coppicing • Raising awareness
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<p>Causes of desertification</p> <ul style="list-style-type: none"> • Climate change • Overgrazing • Over cultivation • Deforestation 	<p>Sustainable solutions</p> <ul style="list-style-type: none"> • Afforestation • Crop rotation • Coppicing • Plant hedges • Store water for irrigation 	<p><i>The Sahel (savanna) is suffering from desertification</i></p>
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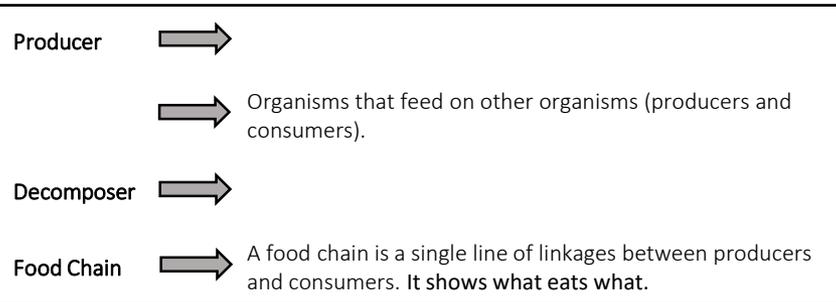
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Savannah	
Desert	
Tundra	
Adaptation	
Sustainability	
Desertification	
Nutrient cycle	



Animals that have adapted to their ecosystem

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Rainforest

- Location
- Climate
- Vegetation
- Animals



Savanna

- Location
- Climate
- Vegetation
- Animals



Desert

- Location
- Climate
- Vegetation
- Animals



The Malaysian Rainforest is suffering from deforestation

Causes of deforestation **Sustainable solutions**

Causes of desertification **Sustainable solutions**

The Sahel (savanna) is suffering from desertification