

Kemnal Keys: Geography – Why are ecosystems different?

What you should know	What you should be able to do
<p>An ecosystem is a geographic area where plants, animals, and other organisms, as well as weather and landscape, work together to form a bubble of life</p> <p>A biome is a large-scale community of organisms that has evolved from the interaction of the Earth's spheres.</p> <p>Biotic components are living (plants and animals)</p> <p>Abiotic components are non-living (sunlight and water)</p> <p>The type of biome in a place is firstly determined by its location on Earth</p> <p>Latitude tells us how far north or south a place is</p> <p>Latitude is measured from 0° at the equator to 90° at the North and South Poles</p> <p>The closer a biome is to the poles the colder and drier it is, the closer a biome is to the equator the warmer and wetter it is</p> <p>Each biome has its own characteristics depending on latitude, soil type, climate, altitude and the amount of available water.</p> <p>A sustainable ecosystem maintains its characteristic biodiversity of plants and animals, without interference from humans</p>	<p>Describe the difference between an ecosystem and a biome</p> <p>Describe the difference between biotic and abiotic</p> <p>State the location of different biomes on a world map</p>
<p>A polar biome has long cold winters, with annual temperatures mostly below freezing because they do not get as much heat from the Sun as other biomes. Polar areas are often windy, with very little precipitation (rainfall) and are located between 60° and 90° north and south of the equator. The ground is covered in ice all year round and the soil is very thin. Plants include moss, algae, and lichen. Animals include polar bears in the Arctic and penguins in the Antarctic.</p> <p>Case Study: Svalbard</p>	<p>Describe the characteristics of a polar biome</p> <p>Explain why temperatures are so low and precipitation is so low in polar biomes</p>
<p>A desert biome is hot and arid (dry) all year round because they are located where they receive little precipitation. They are located between 30° and 50° north and south of the equator. Desert soils are thin, sandy, rocky, and generally grey in colour. When there is rain, they soak up water very quickly and water is drawn up to the surface of the soil by evaporation. Plants and animals in the desert biome have adapted to the high temperatures and lack of water. These include cacti, which have spines instead of leaves to reduce the amount of water evaporation and camels which have wide feet to help them walk on the sandy soil and humps to store fat to use when there is little food.</p> <p>Case Study: Dubai</p>	<p>Describe the characteristics of a desert biome</p> <p>Explain why temperatures are so high and precipitation is so low in desert biomes</p>
<p>A rainforest biome is hot, wet, and humid most of the year with average temperatures over 28° C because it receives a lot of heat from the sun, which is then evaporated, condensed into clouds and precipitates (rains) most days. They are located between 23.5° north and 23.5° south of the equator, between the Tropic of Cancer and the Tropic of Capricorn. The soil is very thin and not very fertile and most of the nutrients are washed out of the soil through the heavy rainfall. The rainforest biome has very high biodiversity (a very large range of plants and animals) and includes lianas and kapok trees and animals such as the spider monkey, the flying frog, and the toucan.</p> <p>Case Study: Galapagos islands</p>	<p>Describe the characteristics of a rainforest biome</p> <p>Explain why rainforest have so much biodiversity</p>
<p>The monsoon biome has two distinct seasons: the wet season and the dry season. This is because they are located between 5° and 30° where the trade winds evaporate huge amounts of moisture from the oceans and blow the clouds onto land where it precipitates. Average rainfall is very high, about 160cm per year. The monsoon biome is home to many different plants and animals including mangrove swamps, reptiles, amphibians, and birds.</p> <p>Case Study: Bangladesh</p>	<p>Describe the characteristics of a monsoon biome</p> <p>Explain why mangrove swamps are so important in the monsoon biome</p>

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1) Draw a diagram to show why different parts of the Earth receive different amounts of heat and light from the Sun

2) Draw a diagram to show a small-scale local ecosystem

3) Draw a diagram to show how plants and animals have adapted to survive in a polar biome

4) Draw a diagram to show how plants and animals have adapted to survive in a desert biome

5) Draw a diagram to show the different layers of a rainforest biome

6) Draw a diagram to show why mangrove swamps are important to the monsoon biome