

Why do plants and animals need to adapt? – I

A *biome* is a community of plants and animals that has adapted to its climate and soil conditions. Earth has six major land biomes and two water biomes that are located at varying latitudes across the globe (from polar to tropical regions). Many species are very adaptable and can be found in more than one biome but others are unique to just one.

Climate, soil conditions and altitude of a biome determine the plants that can grow there and the food web it can support. Fertile soil combined with lots of rain and heat produces rich vegetation that can sustain a food web teeming with many animal species, as in tropical rainforests. Poor soil that is low in nutrients, combined with harsh weather conditions, yields low biodiversity, as in tundra.

For their survival, plants and animals have had to develop different ways of adapting to their environments; for example:

Biome	Plant adaptations	Animal adaptations
Desert	<ul style="list-style-type: none"> store water in leaves or stems have waxy leaf coating to reduce water loss flowers open at night to attract nocturnal pollinators 	<p>The Bactrian camel has nostrils that can close shut, long eyelashes and hair-lined ears to protect against blowing desert sand.</p>
Grassland	<ul style="list-style-type: none"> have thick, fire-resistant bark have fire-resistant roots to allow regrowth after a fire are wind pollinated 	<p>The front legs and paws of some grassland animals are good for burrowing into the ground to provide shelter and protection.</p>
Tundra	<ul style="list-style-type: none"> grow in low-lying clumps to protect against wind and cold have circular flowers that track the sun to keep the plant warm are covered with hair to protect against the cold 	<p>The polar bear has wide paws for walking on snow.</p> <p>The arctic fox and hare change the colour of their coats: white for winter, brown for summer.</p>
Coniferous forest	<ul style="list-style-type: none"> are evergreen and can make food as soon as it's warm enough have wax-coated needles to prevent moisture loss are dark coloured to absorb more sunlight 	<p>Many animals grow a thick fur undercoat and a waterproof hairy top coat to protect against the cold and wet of winter.</p>
Deciduous forest	<ul style="list-style-type: none"> have thick bark to protect against winter cold have wide leaves to absorb more sunlight lose leaves in autumn to reduce water loss 	<p>In the cold winters, animals either migrate, hibernate or survive on stores collected during the autumn.</p>
Tropical rainforest	<ul style="list-style-type: none"> grow on or climb other plants to reach sunlight have specialised roots to hold plants in shallow soil brightly coloured flowers to attract pollinators 	<p>Parrots have very tough beaks for cracking open nut shells.</p>
Water	<ul style="list-style-type: none"> produce seeds that float have leaves that float to absorb more sunlight have air sacs in stems to hold plant upright in water 	<p>The sea otter has sensitive, long whiskers to detect the movement of fish.</p> <p>The pond-skater's legs allow it to move easily on water.</p>

