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GCSE Biology – Abiotic Factors - Transcript

Our environment is made up of both living and non living elements. How do these non-living, abiotic factors affect life on earth and impact our eco systems?

Well, an ecosystem is a community of living things interacting with each other and their physical environment.

Things like light, temperature, and water are the non-living parts of an ecosystem, the abiotic factors, that affect organisms.

Biotic factors, on the other hand, are the living parts. The plants, animals, and microorganisms. Different abiotic factors affect organisms in different ways.

Light intensity affects where plants grow. Shade-loving ferns thrive under trees, while others need direct sunlight.

Temperature influences both plant growth and animal survival.

Polar bears have evolved thick fur and fat reserves to keep warm, while fennec foxes have big ears to lose heat to help them survive in the desert. And grass won't grow much at all under 5oC.

Water availability and mineral content affect plant health.

Cacti are able to survive in deserts without much water, where many other plants struggle. And low minerals can cause yellow leaves, but some plants, like Venus flytraps, have adapted to trap insects for extra nutrients allowing them to grow in areas where others can’t.

And in aquatic habitats, oxygen levels determine which animals can live there. Fish need oxygen-rich water, while sludge worms cope in low-oxygen conditions.

When abiotic conditions and temperature change, so do the abundance of organisms. Changes in the amount of water can reduce plant growth, and fewer plants mean fewer animals that depend on them.

So, the abiotic factors shape where organisms live, how they grow, and how well they survive.