

Important Abiotic Factors

Abiotic factors are the non-living parts of the environment that have a major influence on living organisms. They can help determine things like how tall trees grow, where animals and plants are found, and why birds migrate. The most important abiotic factors include water, sunlight, oxygen, soil and temperature.

Water (H₂O) is a very important abiotic factor – it is often said that “water is life.” All living organisms need water. In fact, water makes up at least 50% of almost all living things. Some organisms are made up of 95% water! Water is also essential because other substances easily dissolve into it. This allows water to carry nutrients to cells and wastes away from them. Without water, animals become weak and confused, and they can die if they don’t get enough water. Think of how you feel after you take a long run. Do you feel thirsty? This is your body signaling to you that you need water.

Sunlight is the main source of energy on Earth, which makes it an extremely important abiotic factor. Sunlight is necessary for photosynthesis, the process where plants use carbon dioxide (CO₂) and water to make sugar – food for the plants that later becomes food for animals. Without the sun, plants could not live, and without plants, animals could not live! Sunlight is also plays a role in the production of oxygen and to an area’s temperature, which are discussed in detail below.

Like water, **oxygen** (O₂) is another important abiotic factor for most living organisms. Oxygen is used by cells as an energy source. It gives cells the energy they need to carry out important functions, for growth, and reproduction. Without oxygen, humans and the other organisms that use oxygen would not be able to live! Oxygen is produced by green plants through the process of photosynthesis, and is therefore directly linked to sunlight.

Soil is considered an abiotic factor since it is mostly made up of small particles of rock (sand and clay) mixed with decomposed plants and animals. Plants use their roots to get water and nutrients from the soil. Soils are different from place to place – this can be a big factor in which plants and animals live in a certain area.

Temperature is an abiotic factor that is strongly influenced by sunlight. Because the amount and strength of sunlight varies by location, the earth’s surface has different temperatures in different zones. While some animals and plants can bear extreme heat or extreme cold, others can only survive well in moderate temperature ranges. In fact, all plants and animals are adapted to survive between a minimum and maximum range of temperatures. For example, a penguin from the polar region couldn’t live in a 110°F desert. It would be too hot! Temperature, then, helps to influence which plants and animals can live in an area.

WATER

WHY do living things need water?

What jobs does water carry out for cells?

What would happen without water?

SUNLIGHT

What do plants make from sunlight?

What would happen without sunlight?

What does the amount of sunlight determine?

OXYGEN

What do cells use oxygen for?

What would happen without it?

SOIL & TEMP.

What TWO things do plants get from the **soil**?

What does **temperature** help to influence?