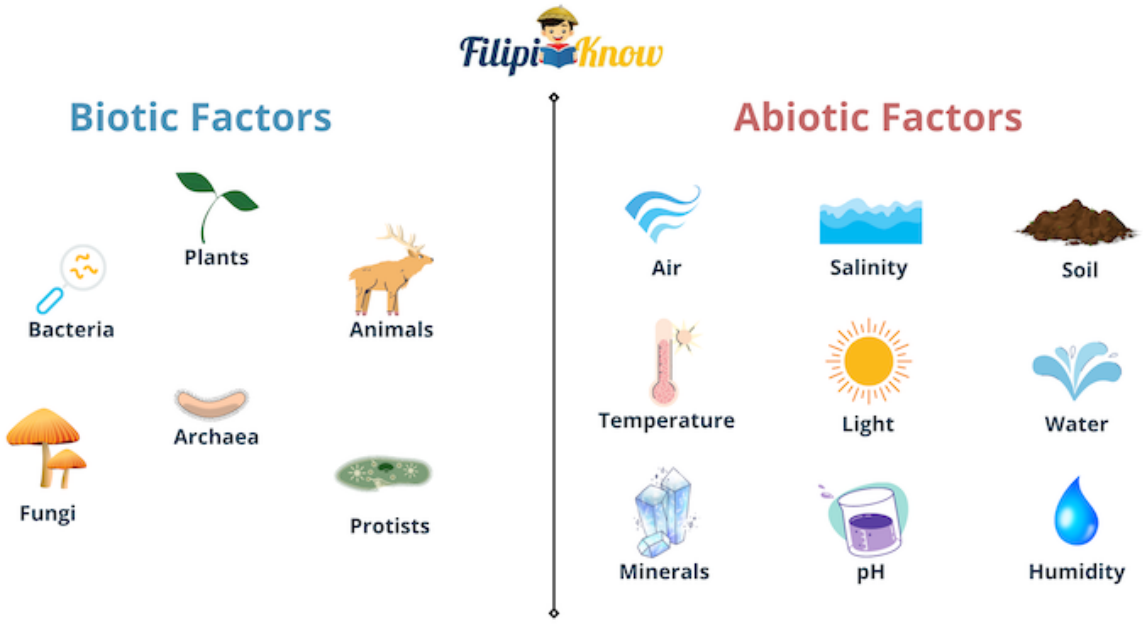
The Principles of Ecology

Abiotic Factors in the Environment

Life thrives in different habitats but in order for organisms to live in each place, they must be adapted to the abiotic factors present in those environments.

Life depends on energy transformation and so must require an **energy source** to live. Solar energy captured through photosynthesis powers most ecosystems but you can say that different environments have different tolerances and requirements for life. For instance, those that live in the abyss of oceans or the organisms in deep cave communities may not be directly reliant on light.



Temperature is another important abiotic factor because of its effects on metabolism and we have also discussed how extreme temperatures could be destructive to cells. **Water** is essential to all life with dehydration being a major danger to terrestrial organisms while aquatic organisms, by their nature, have to maintain normal solute concentrations.

The distribution of photosynthetic organisms and autotrophs, in general, is highly influenced by the availability of inorganic nutrients. Oxygen may be plentiful in the land, but aquatic organisms require it to be dissolved in water. Salinity, current, and tides may also play a role in aquatic ecosystems. **Wind**, meanwhile, is often another important abiotic factor in terrestrial environments. So really, different abiotic factors play a major or minor role depending on the requirements of the organism and the environment they are living in.

Among the abiotic factors is the effect of climate on the planet. Hence, in the next topic, we will look into the influence of climate on ecological communities.