

Cycles of the Environment

Water cycle

This is how water is recycled throughout Earth's atmosphere, land, and bodies of water! The Earth has been recycling the same water this same way for over 4 billion years now: Evaporation, Condensation, Precipitation, Collection, etc.

You could be drinking the same water that a T-Rex once drank— or your cave-dwelling ancestor! People have always needed water and so have plants. When it rains, plants use water to make energy (photosynthesis) as their roots soak up water from the soil. This water will also return to the cycle when it exits through the leaves: known as "transpiration".

Rock cycle

The rock cycle takes place over millions of years as heat, pressure, and exposure to elements builds, breaks, and rebuilds minerals into Igneous, Sedimentary, & Metamorphic rocks. Our soil is the result of this process combined with organic matter resulting from the biogeochemical cycles!

Carbon/Oxygen cycle

Carbon and Oxygen are constantly recycled between the atmosphere, plants, land animals, and our oceans. Oxygen makes up 20% of our atmosphere, and we of course breathe it in to function. When we breathe in Oxygen, we breathe out Carbon Dioxide which is what plants "breathe" in for energy. When plants & animals die & decay, Carbon then sinks into the ground and is also released into the air. 99% of Carbon on Earth is stored underground!

Nitrogen cycle

Many people don't know that our atmosphere is mostly made up of Nitrogen— almost 80%! Plants and animals require Nitrogen to produce protein & amino acids. However, they cannot use Nitrogen as it exists in the air. Bacteria in the ground— as well as lightning in the air— catalyze the production of a usable Nitrogen for plants and thus animals. This is known as Nitrogen Fixation. It returns to the atmosphere with death/decay as well as bacterial "denitrification". Humans will add Nitrogen to gardens in the form of fertilizer, but adding Nitrogen into the cycle large-scale can be dangerous, causing a surplus of nutrients in waterways and unfavorable growing conditions for native plants.