

Kids in Nutrition

HEALTH BEGINS IN YOUTH.

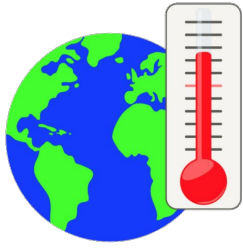
Food Sustainability Program
Weekly Newsletter

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Lesson 1: Climate Change



Climate change has been characterized as the largest global health threat of the 21st century. While weather is defined as the short-term, local atmospheric conditions, climate refers to the long-term pattern of weather. Proceeding at an unprecedented rate, the current warming trend associated with climate change is most likely the result of human activity starting from the mid-20th century. As Earth's global surface temperature continues to rise, human health, water, agriculture, food, ecosystems, and many more things that we depend on and value are experiencing the negative effects of climate change.

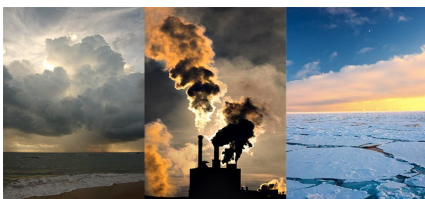
Lesson Objectives

- Explain climate change, its impacts, and its causes.
- Explain greenhouse effect and greenhouse gases.

Climate Change

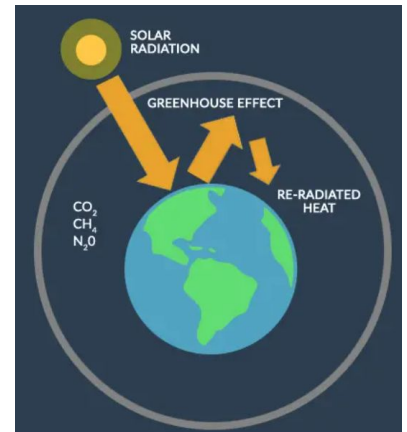
Defined as the significant, lasting change in temperature, precipitation, or other weather conditions, climate change is primarily caused by the burning of fossil fuels. Fossil fuels like coal and oil are nonrenewable resources made from ancient buried animal and plant remains. Their combustion generates energy and releases stored carbon, which then interacts with the oxygen in the air to form a greenhouse gas called carbon dioxide. As a result, the concentration of atmospheric carbon dioxide increases, and Earth's surface temperature rises over time. However, a small change in temperature causes enormous changes in the environment. Here are some examples of environmental changes happening right now:

- **Global warming** – the gradual increase in the overall atmospheric temperature induced by humans burning fossil fuels.
- **Rising sea levels** – **melting glaciers and ice sheets** and the expansion of seawater as it absorbs heat from the atmosphere increases the levels of the world's oceans.
- **Ocean acidification** – oceans absorb the CO_2 emitted by humans, and the lowered pH of oceans leads to a loss of biodiversity.
- **Extreme events** – floods, droughts, wildfires, and hurricanes are predicted to become more intense and frequent.



Greenhouse Effect

Similar to how the glass walls of a greenhouse collect heat from sunlight to warm the air and plants inside, gases in the atmosphere trap the sun's warmth close to Earth's surface. These heat-trapping gases called greenhouse gases contribute to climate change.



Greenhouse Gases (GHGs)

There are three main types of GHGs:

- 1) **Carbon dioxide (CO_2)** – 72% of GHGs
 - Released through human activities like burning fossil fuels, land use changes, and deforestation.
- 2) **Methane (CH_4)** – 18% of GHGs
 - Created by the decomposition of wastes in landfills, ruminant digestion, agriculture, manure management, and rice cultivation. Although far more potent than CO_2 , methane is much less abundant in the atmosphere.
- 3) **Nitrous oxide (N_2O)** – 9% of GHGs
 - Produced by soil cultivation practices with fertilizers, combustion of fossil fuels and biomass, and production of nitric acid.

★ Weekly Challenge!

There are several ways that we can all reduce our consumption and help mitigate climate change! This week, try to complete one of the following:

- Conserve water (ex: turn the faucet off while brushing your teeth, take shorter showers).
- Use less energy (turn off lights when not in use, unplug devices).
- Drive less (bike or walk instead).
- Calculate your carbon footprint by using this website: [footprint.wwf.org.uk](https://www.footprint.wwf.org.uk).