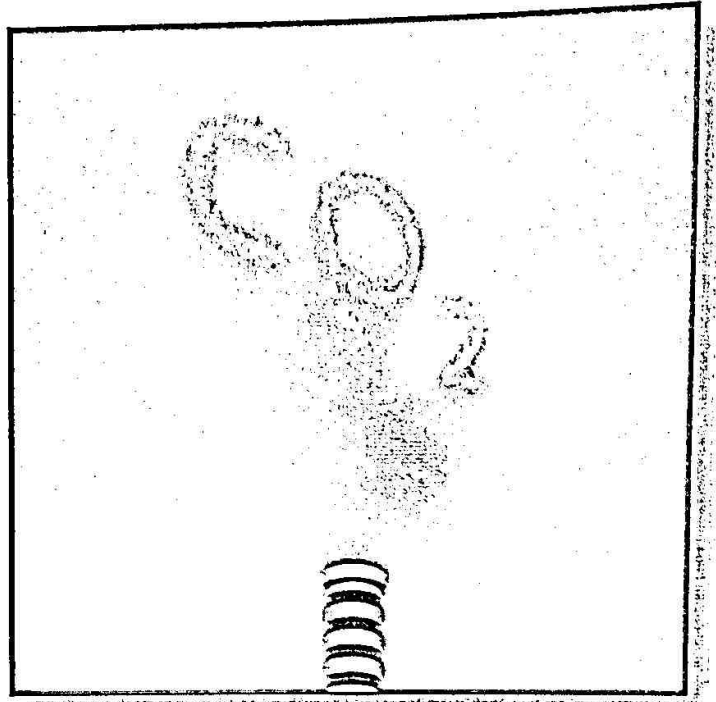


# Climate Change Has Your Footprint On It

**T**he **climate** of our planet is changing. Earth is getting warmer, and it will continue to heat up for the rest of your lifetime. The question has changed from, "Is this really happening?" to "What can we do to slow it down?" Read on to find what you can do.



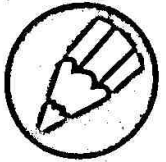
Carbon is always traveling from place to place

Earth is warming because of an increase in the **greenhouse effect** of Earth's **atmosphere**. Have you ever been in a greenhouse? It is warmer inside a greenhouse than outside because the glass windows trap the sun's energy in the form of heat. The atmosphere works the same way because a few of the gases in the atmosphere work like greenhouse windows to trap heat.

The greenhouse effect is actually a *good* thing. Without it, the planet would be too cold to support life. What we have now is too *much* of a good thing. The amounts of greenhouse gases in the air have been increasing rapidly over the last hundred or so years causing **global** temperature to rise.

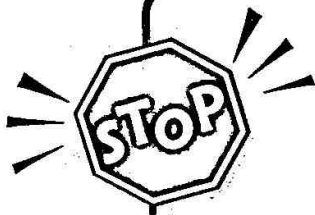
**Carbon dioxide** is an important greenhouse gas for two reasons: It is the one that is increasing the most, and it is increasing because of human activities. Carbon dioxide **molecules** are made of one **carbon atom** and two **oxygen** atoms, as shown by its chemical formula, **CO<sub>2</sub>**. The carbon is not always part of CO<sub>2</sub>. When it is on Earth's surface, it can be part of the **organic** molecules that plants and animals are made of. Carbon is always traveling from place to place and taking different forms in a process called the **carbon cycle**.

NAME: \_\_\_\_\_



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Much of the increase in atmospheric CO<sub>2</sub> is the result of **combustion** processes. Combustion, another word for burning, happens when oxygen reacts rapidly with materials containing carbon **compounds**, such as wood, gasoline, or **methane**. The main products of combustion reactions are CO<sub>2</sub>, water, and heat. During another process in the carbon cycle, plants turn CO<sub>2</sub> and water back into carbon compounds and oxygen. So now we are back where we started.



**What change in the gases that make up the atmosphere is causing Earth's climate to change?**

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More carbon dioxide is in the air today because there is more combustion putting it there and fewer plants removing it. Combustion began to increase when people started burning a lot more **fossil fuels** during the 19th Century. Coal, oil, and **natural gas** are the main fossil fuels. A lot of coal is used to generate electricity, oil is made mostly into gasoline, and natural gas is used for cooking and heating.

Perhaps you are beginning to see where these facts are leading. Almost everything we buy, every trip we take, and everything we eat depends in some way on the combustion of fossil fuels. All manufacturing, construction, farming, communication, and transportation cause the release of CO<sub>2</sub> into the atmosphere because they all use fossil fuels, either directly or indirectly.

Your own activities are responsible for a definite share of the CO<sub>2</sub> released into the atmosphere. This share is called your **carbon footprint**, and it is expressed in tons (yes, *tons!*) of CO<sub>2</sub> per year. You can calculate your own personal carbon footprint right now by turning to page 42.