

# What is a carbon footprint?

Synthesized from: <http://www.takepart.com/> and <https://science.howstuffworks.com/>



You can't control everything, but being conscious of your carbon footprint helps.

A carbon footprint is the amount of greenhouse gases—primarily carbon dioxide—released into the atmosphere by a particular human activity. A carbon footprint can be a broad measure or be applied to the actions of an individual, a family, an event, an organization, or even an entire nation. It is usually measured as tons of CO<sub>2</sub> emitted per year, a number that can be supplemented by tons of CO<sub>2</sub>-equivalent gases, including methane, nitrous oxide, and other greenhouse gases.

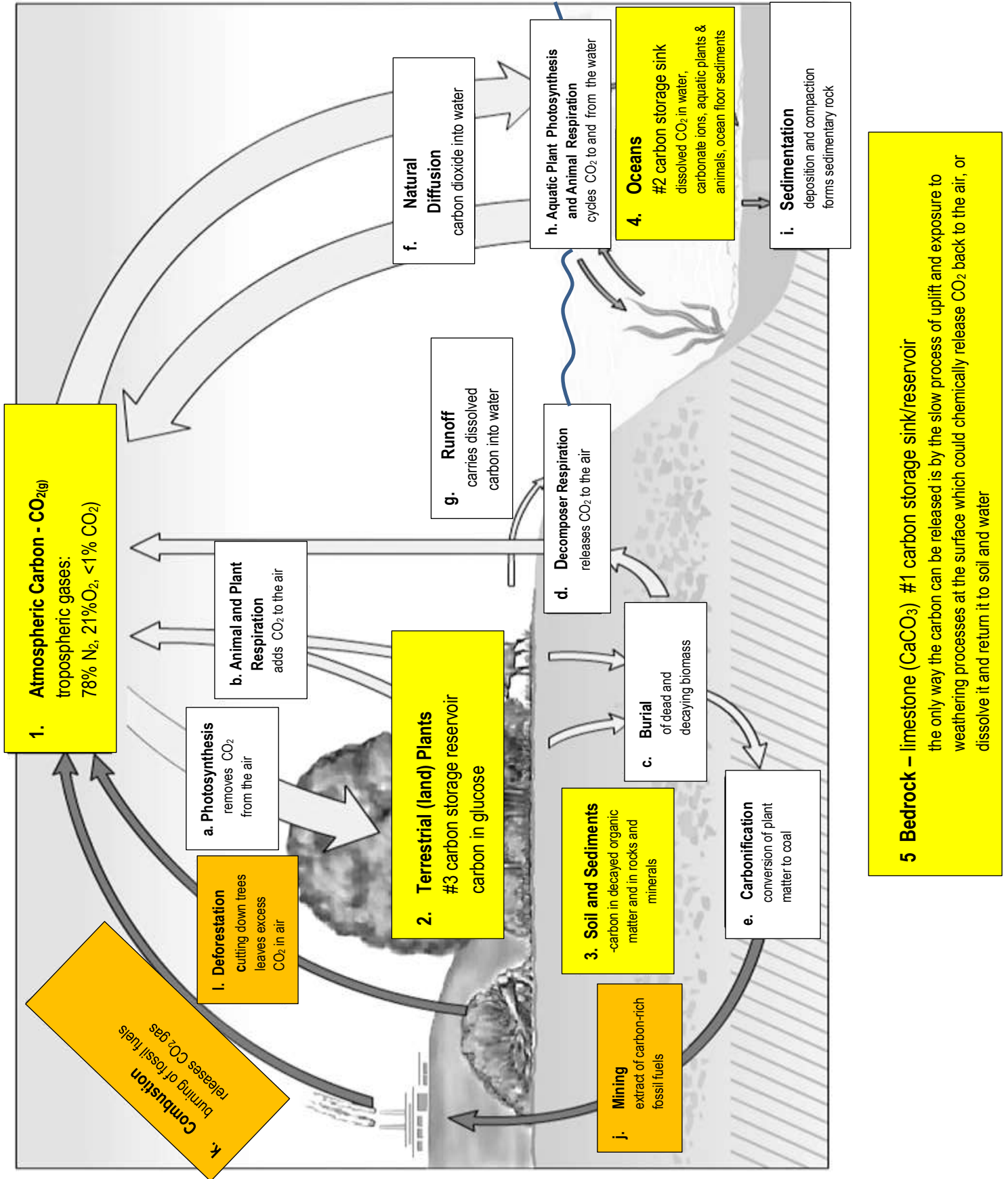
## How is a carbon footprint calculated?

When calculating a carbon footprint, a lot of factors are taken into consideration. For example, driving to the grocery store burns a certain amount of fuel, and fossil fuels are the primary sources of greenhouse gases. But that grocery store is powered by electricity, and its employees probably drove to work, so the store has its own carbon footprint. In addition, the products that the store sells were all shipped there, so that must also be factored into the total carbon footprint. Beyond that, the fruits, vegetables, and meats that the store sells were all grown or raised on farms, a process that produces methane, which has a greenhouse effect 25 times greater than CO<sub>2</sub>. All of those elements must be combined to understand the full carbon footprint of a given activity.

## How can I reduce my carbon footprint?

Methods of reducing your carbon footprint include driving more-efficient vehicles (or making sure that your current vehicles are properly maintained), taking public transportation, using energy-efficient appliances, insulating your home to reduce heating and air conditioning costs, consuming food that doesn't require as much transportation, and eating less meat, which has a higher carbon footprint than fruits and vegetables. Individuals and companies can also offset some of their CO<sub>2</sub> emissions by purchasing carbon offset credits, the money from which can go into projects such as planting trees or investing in renewable energy. Carbon offsets are a form of trade. When you buy an offset, you fund projects that reduce greenhouse gas (GHG) emissions. The projects might restore forests, update power plants and factories or increase the energy efficiency of buildings and transportation. Carbon offsets let you pay to reduce the global GHG total instead of making radical or impossible reductions of your own. GHG emissions mix quickly with the air and, unlike other pollutants, spread around the entire planet. Because of this, it doesn't really matter where GHG reductions take place if fewer emissions enter the atmosphere. Carbon offsets are voluntary. People and businesses buy them to reduce their carbon footprints or build up their green image.

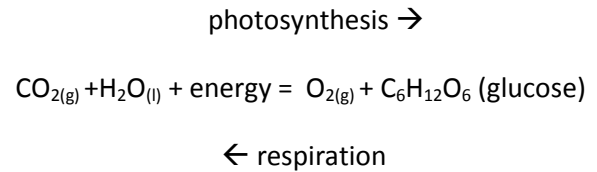
Aim:



# THE CARBON CYCLE

a. **photosynthesis** – plants take in CO<sub>2</sub>

b. **animal and plant aerobic respiration**  
releases CO<sub>2</sub> to atmosphere



c. **burial**  
of dead organisms and animal waste

d. **decomposer aerobic respiration**  
releases CO<sub>2</sub> to atmosphere

e. **carbonification**  
compaction slowly converts organic material into coal

f. **natural diffusion**  
allows for exchange of dissolved CO<sub>2</sub> gas in the oceans with the air above

g. **runoff / weathering and erosion**  
from land carries dissolved carbon into oceans

h. **photosynthesis / respiration / decomposition and other chemical reactions with seawater**  
recycles dissolved CO<sub>2</sub> similar to the way it is recycled to and from the atmosphere; chemical reactions in the water cause some CO<sub>2</sub> to form carbonate (CO<sub>3</sub><sup>2-</sup>) and bicarbonate (HCO<sub>3</sub><sup>-</sup>) ions which remain dissolved in the seawater

i. **sedimentation**  
rocks such as limestone (CaCO<sub>3</sub>) form from deposits of dead sea organisms that once absorbed the carbonate and bicarbonate ions to form shells and skeletons; limestone can be uplifted and exposed at surface where it is chemically weathered releasing CO<sub>2</sub> back to the atmosphere

j. **mining**  
extraction of fossil fuels

k. **combustion**  
burning of wood (wildfires and as biofuel) and burning fossil fuels, and natural volcanic eruptions put excess CO<sub>2</sub> in the atmosphere (disrupts normal photosynthesis/respiration balance) and to climate change / global warming (CO<sub>2</sub> is a greenhouse gas).

l. **deforestation / destruction of vegetation**  
leaves an excess of CO<sub>2</sub> in atmosphere disrupts normal photosynthesis/respiration balance)

human impact/influence

contributes