

DO NOW: Label the next Left & Right Sides

"Carbon Cycle"

Three friends were talking about carbon dioxide and oxygen in the ecosystem. They each had different ideas. This is what they said:

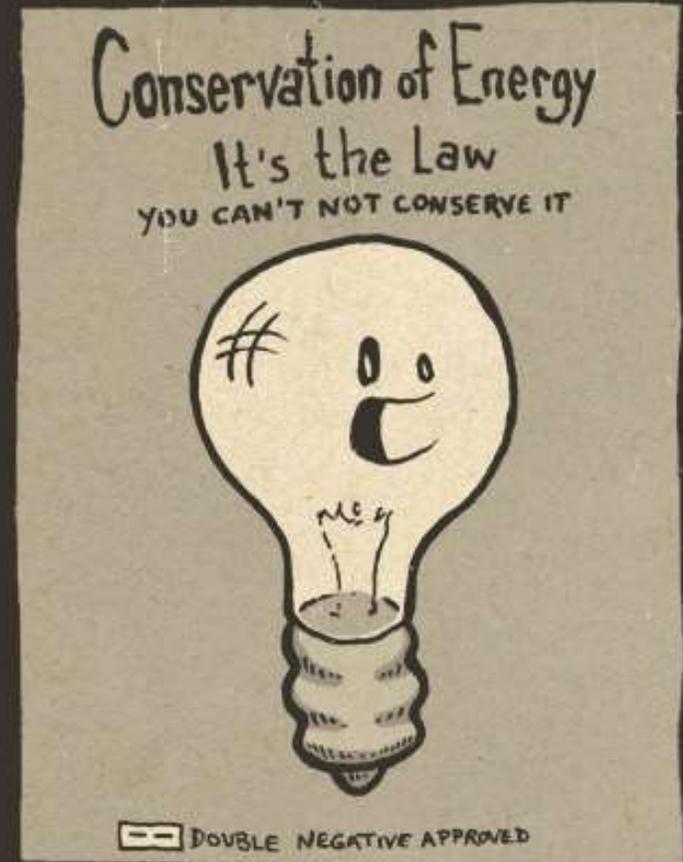
Flynn: I think animals take in oxygen and breathe out carbon dioxide. Plants then take in the carbon dioxide and release oxygen, and the cycle continues.

Jervis: I think both plants and animals take in oxygen and release carbon dioxide; but only the plants take in the carbon dioxide and release oxygen, and the cycle continues.

Melody: I think both plants and animals take in oxygen and release carbon dioxide. The oxygen is used up and carbon dioxide is not cycled again by living things.

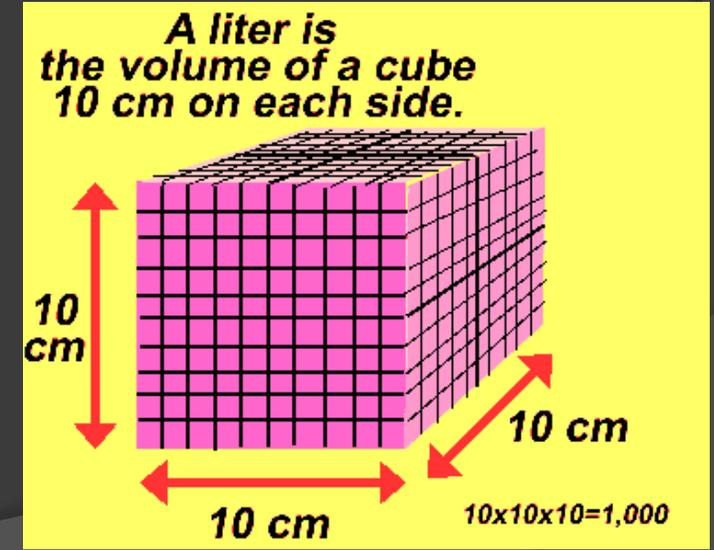
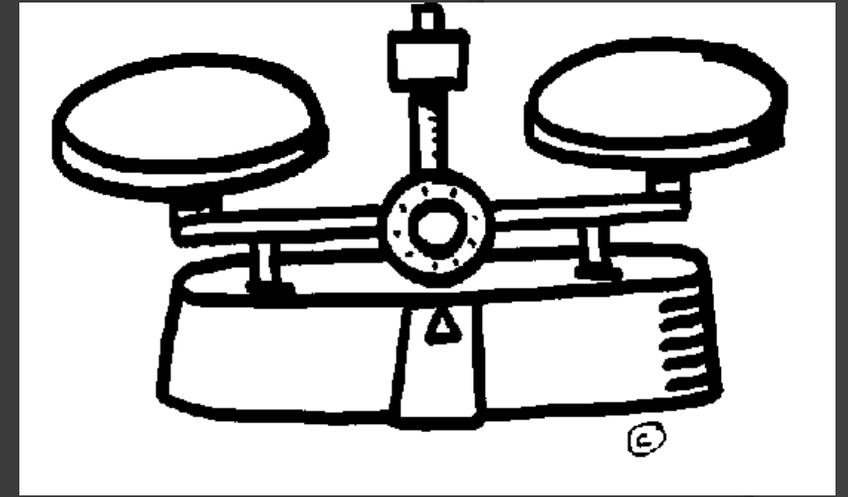
With which friend do you agree with the most? Explain why you agree.

LAW OF CONSERVATION OF MASS/ENERGY & THE CARBON CYCLE



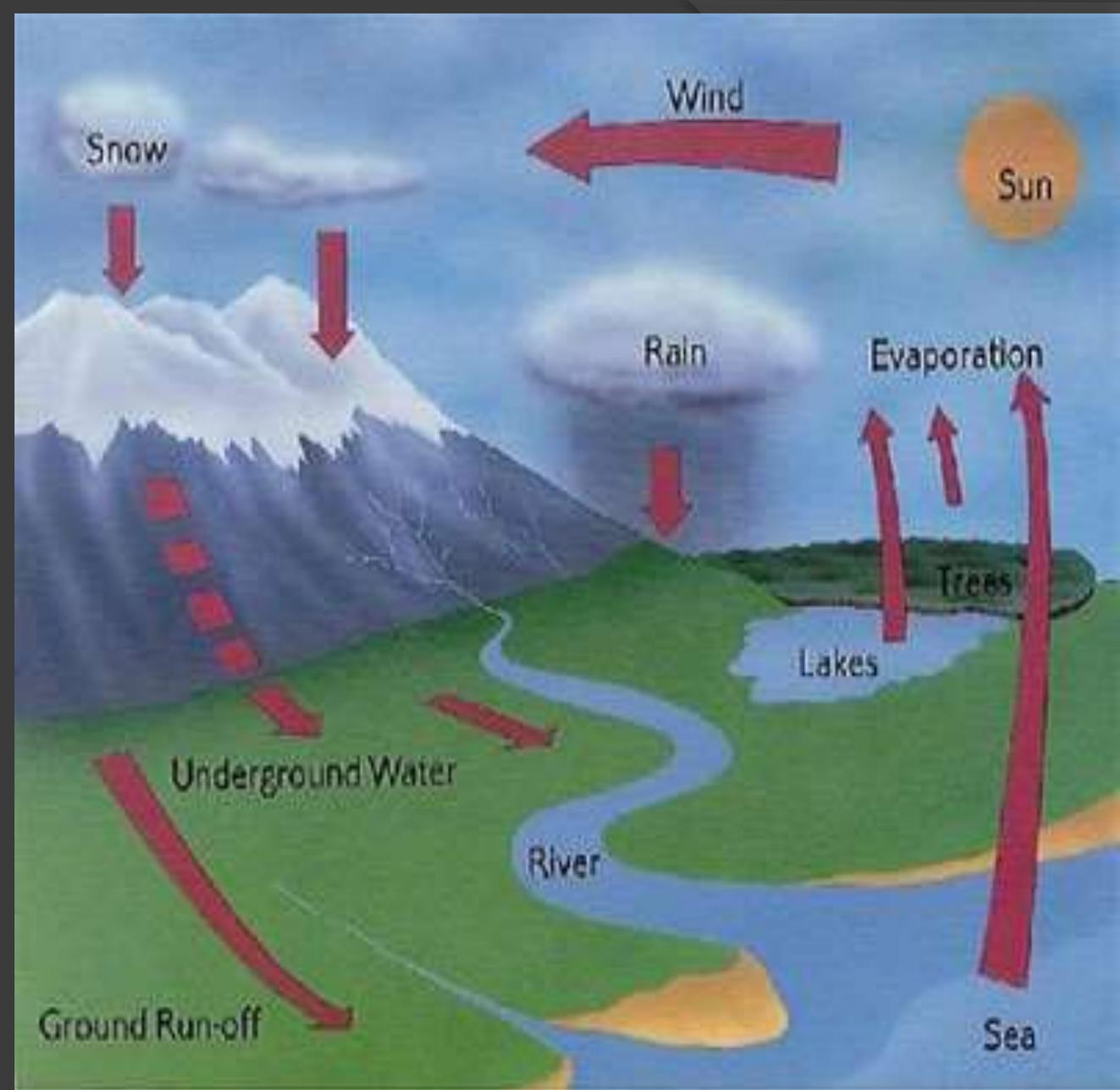
What is matter?

- Matter is anything that has **mass** and takes up **space**.



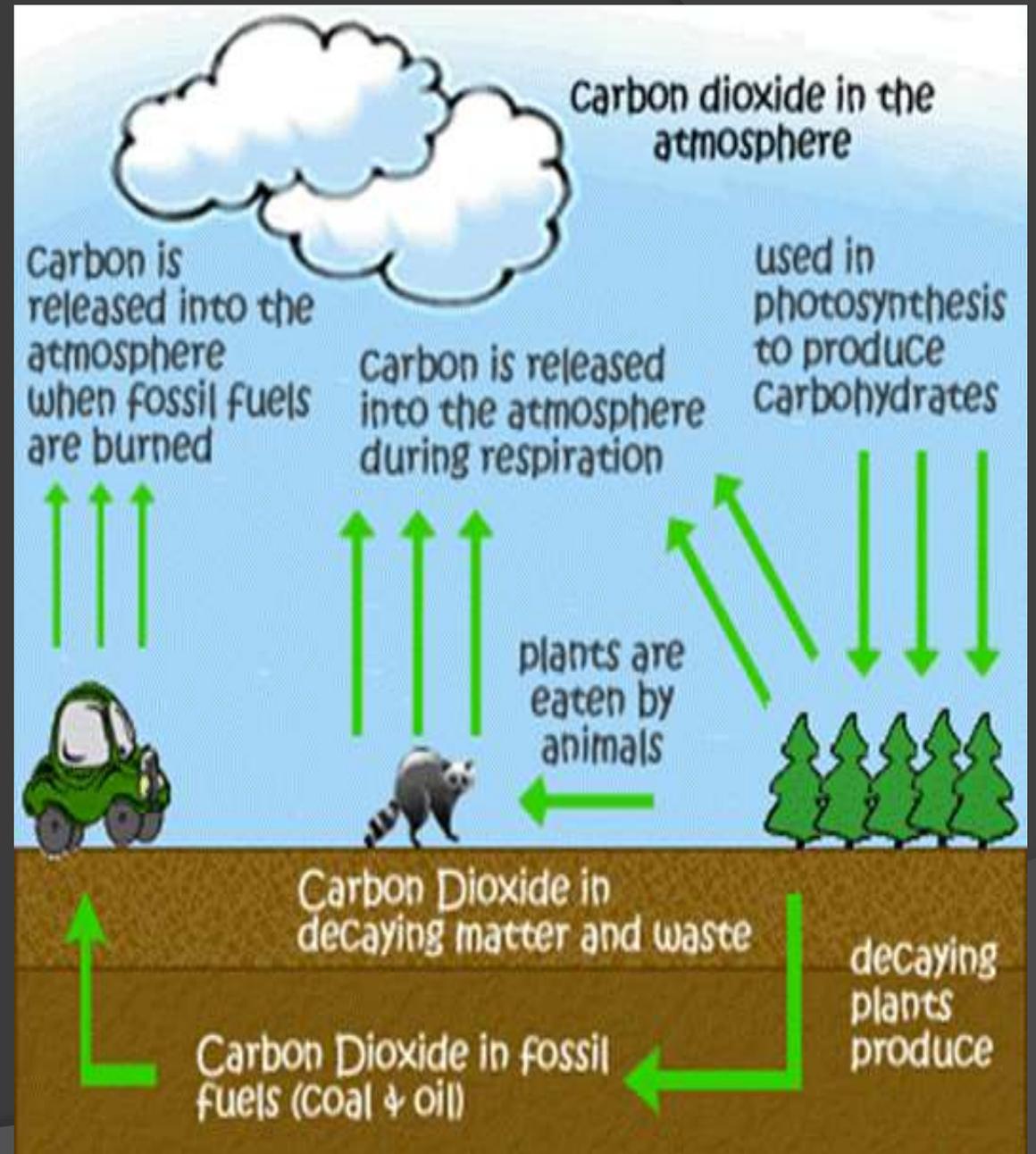
Follow the Law...

- ◎ The Law of Conservation of Matter states that matter is **not created or destroyed**, only changed from one form to another.



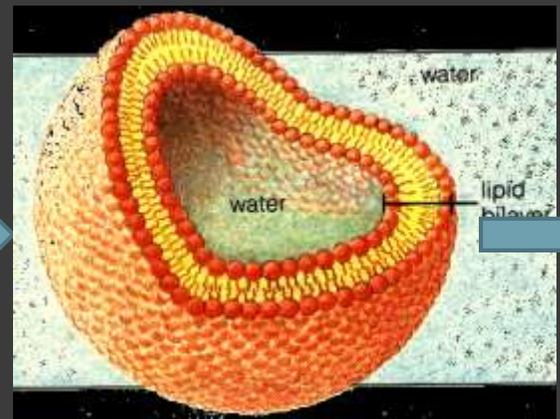
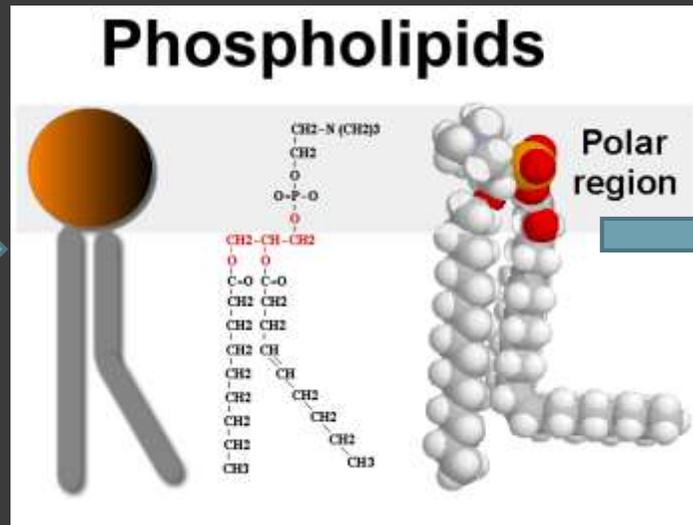
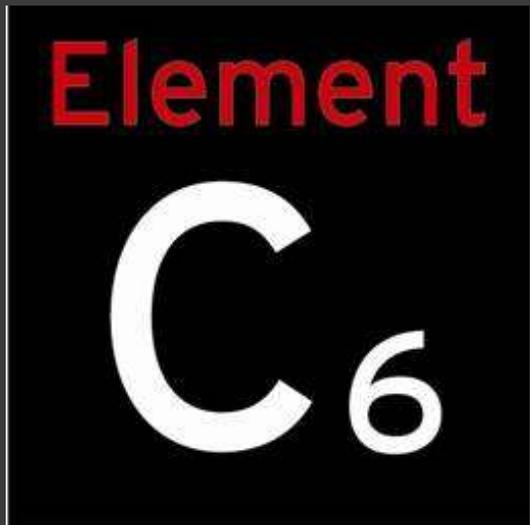
The Carbon Cycle

- The Carbon Cycle is a complex series of processes through which **all of the carbon atoms in the world** recycle.



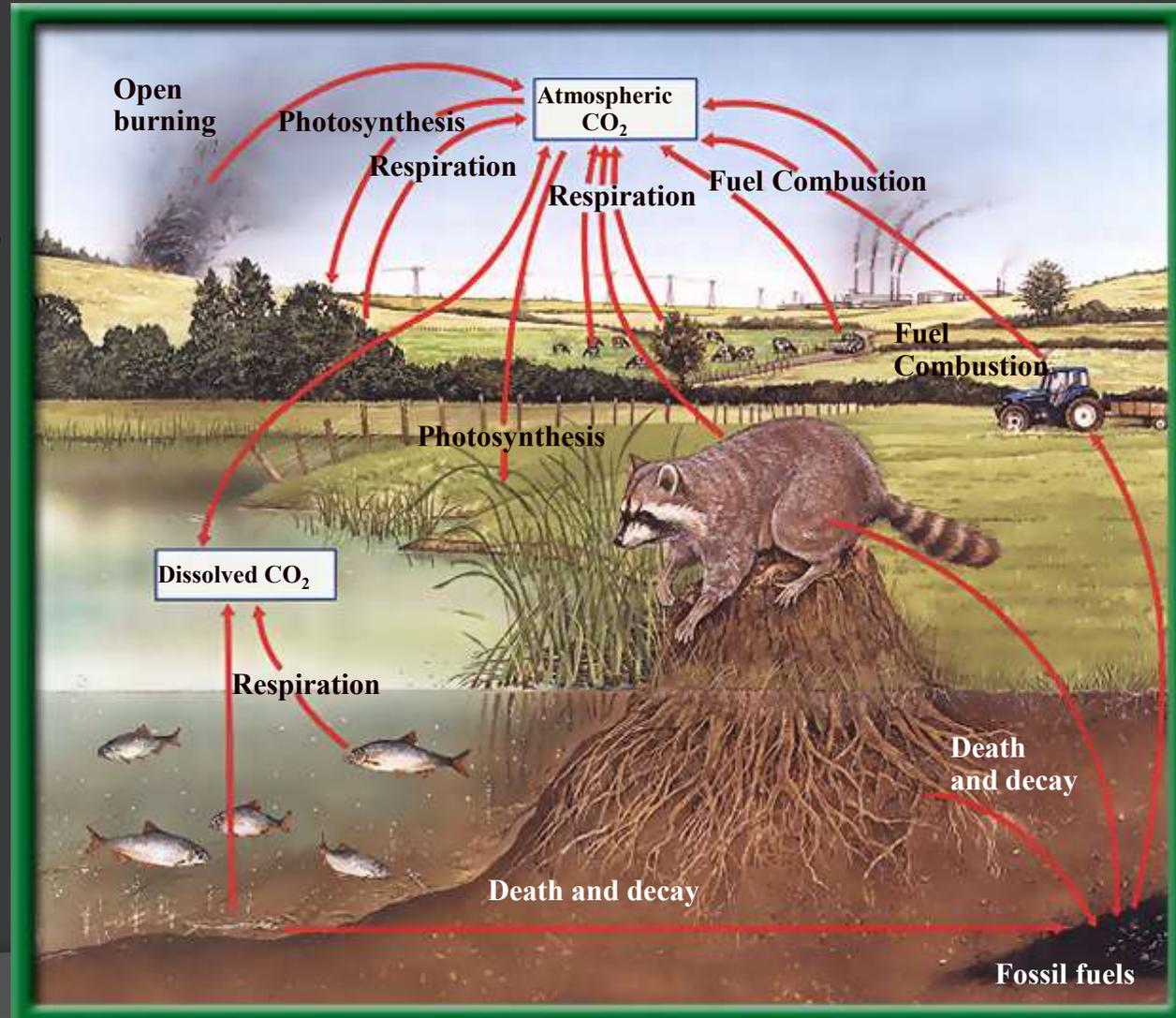
The Carbon Cycle

- Carbon is important because all life on earth is **based on carbon.**



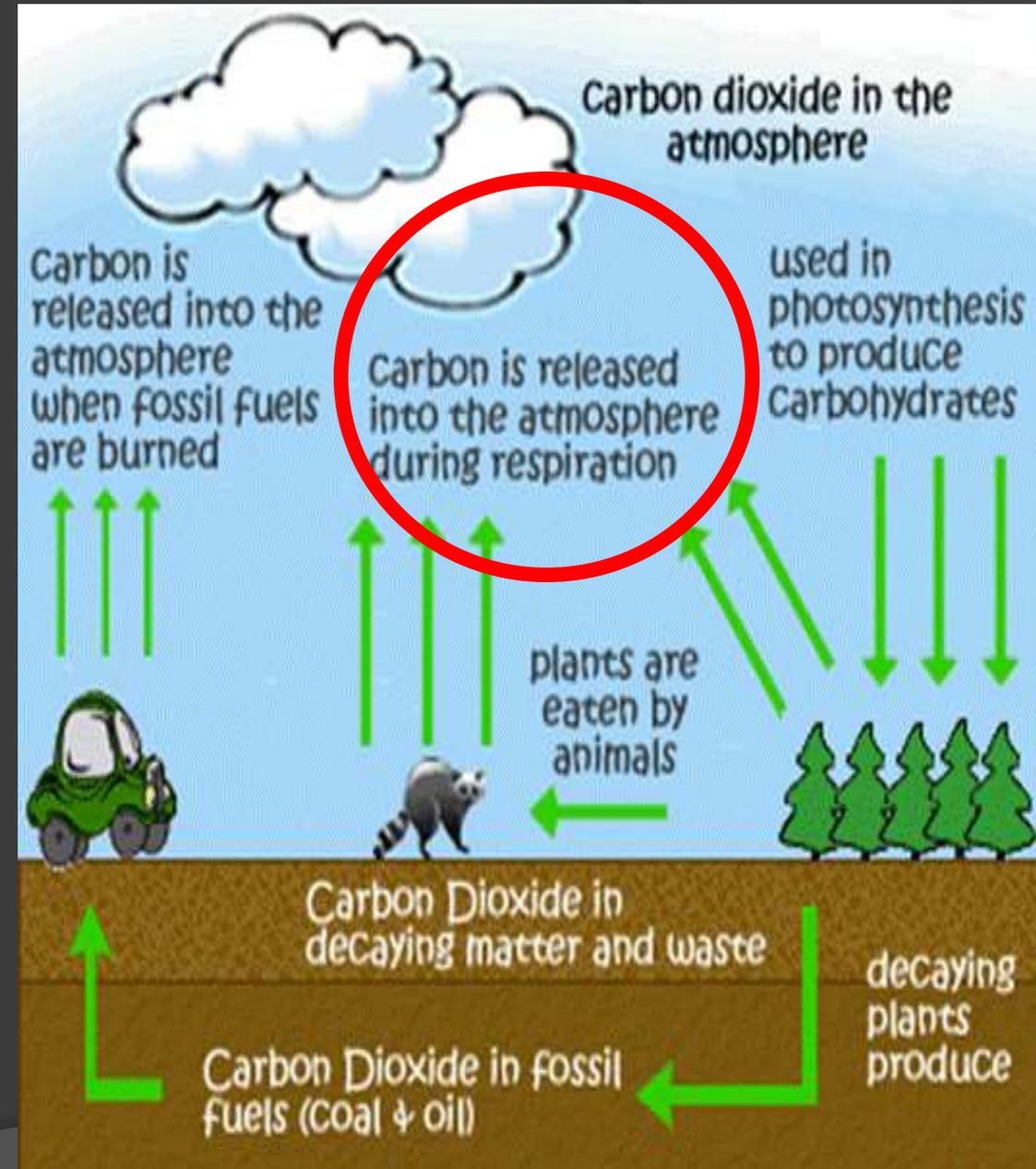
The Carbon Cycle

- Carbon is found in the **atmosphere** (the air) and **oceans** as the gas carbon dioxide (CO_2).



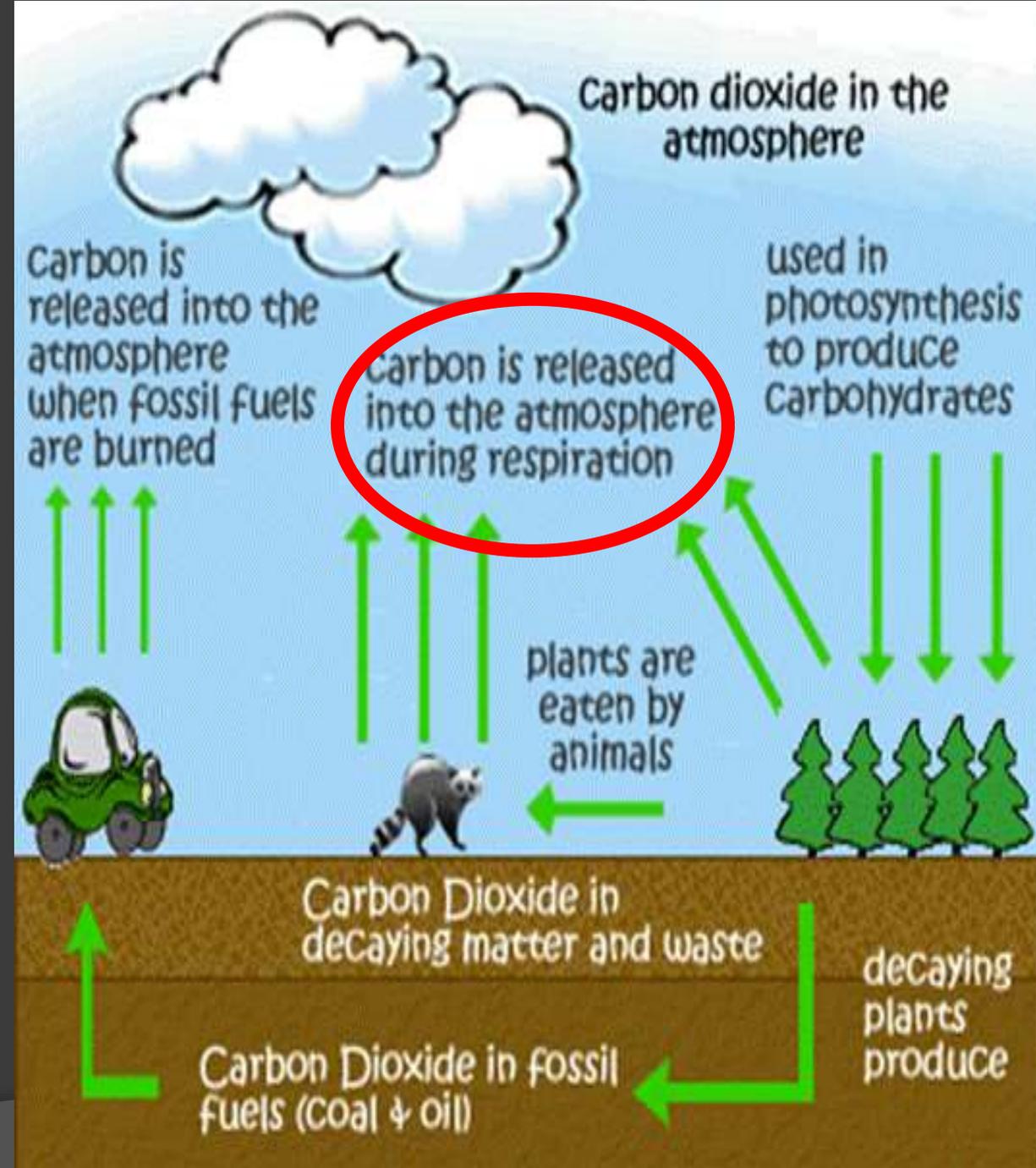
Photosynthesis

Photosynthesis is one of the only processes that take CO₂ out of the atmosphere.



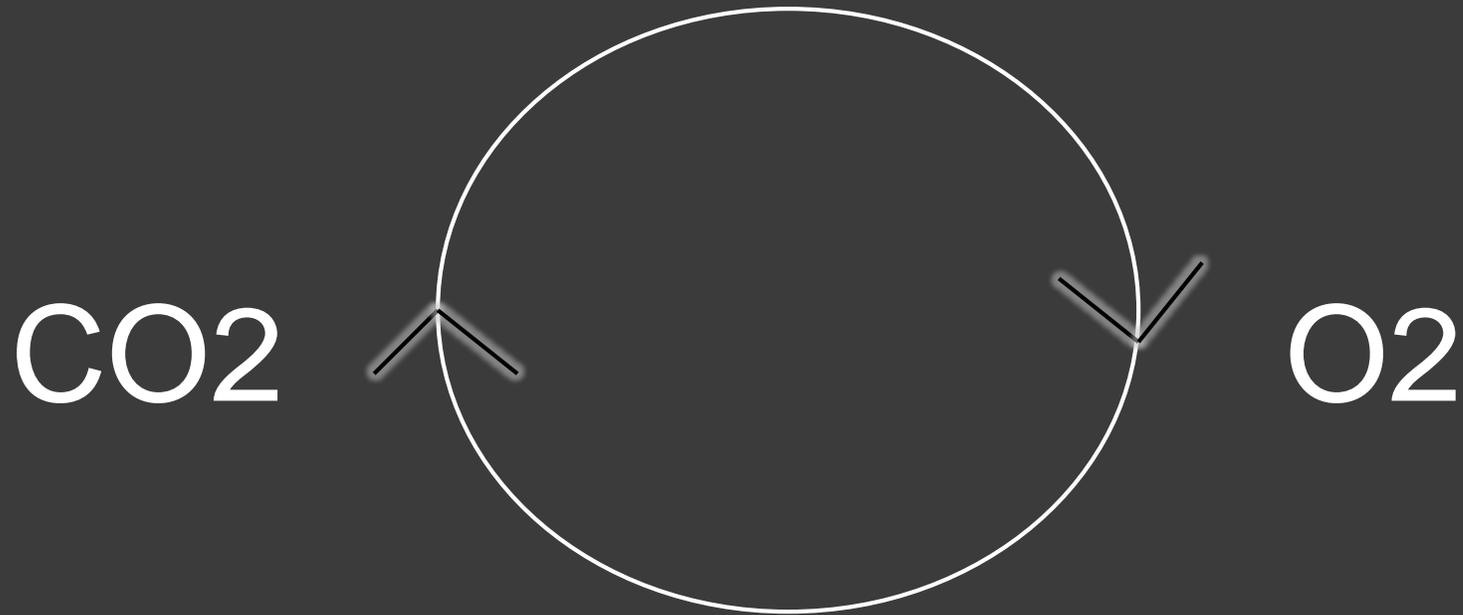
Cellular Respiration

- ◎ BOTH plants and animals release CO_2 into the air through **cellular respiration (in mitochondria)**
- ◎ For example: Humans breathe in oxygen and breathe out CO_2 .



Photosynthesis vs. Cell Respiration

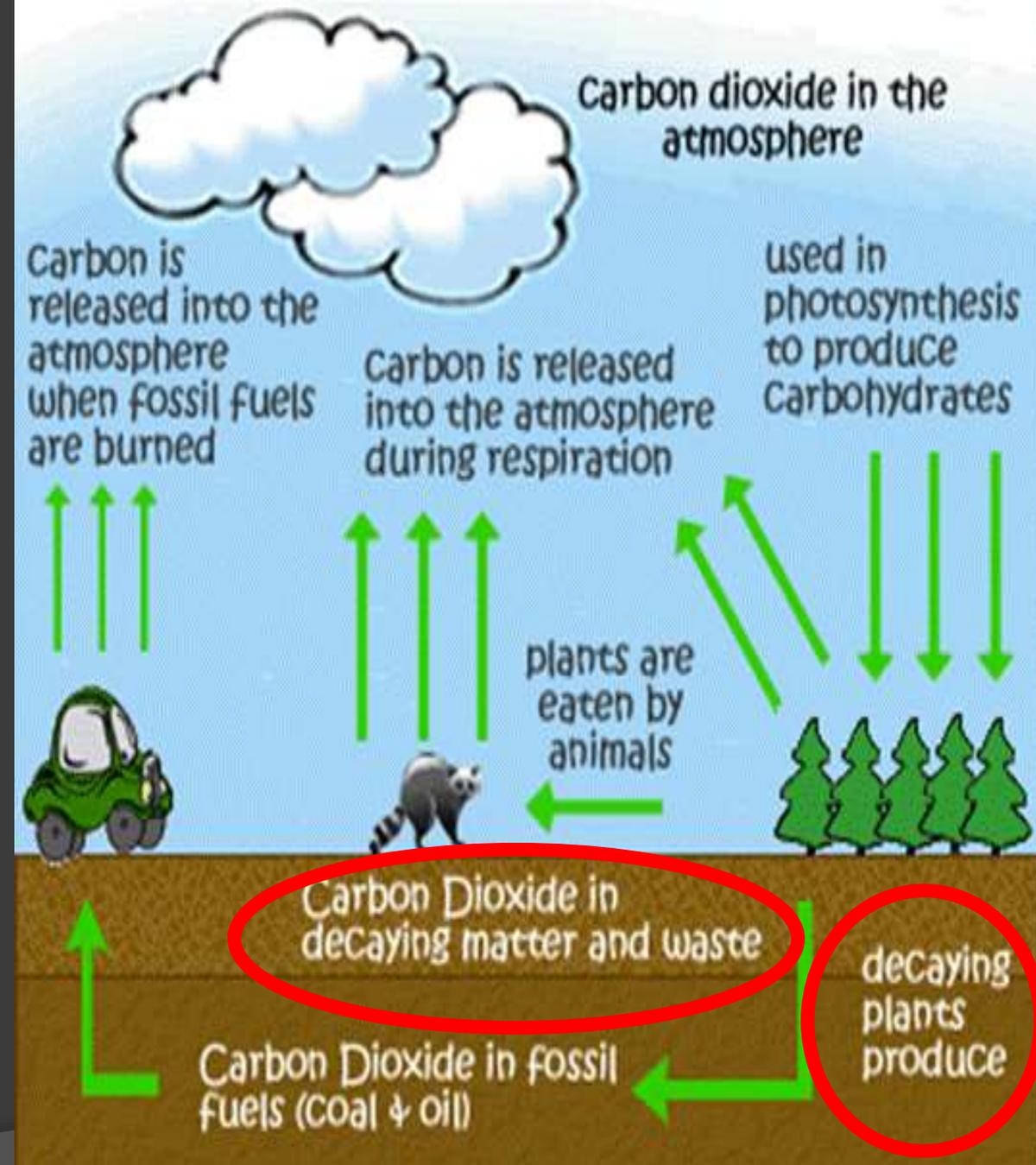
Photosynthesis



Cell Respiration

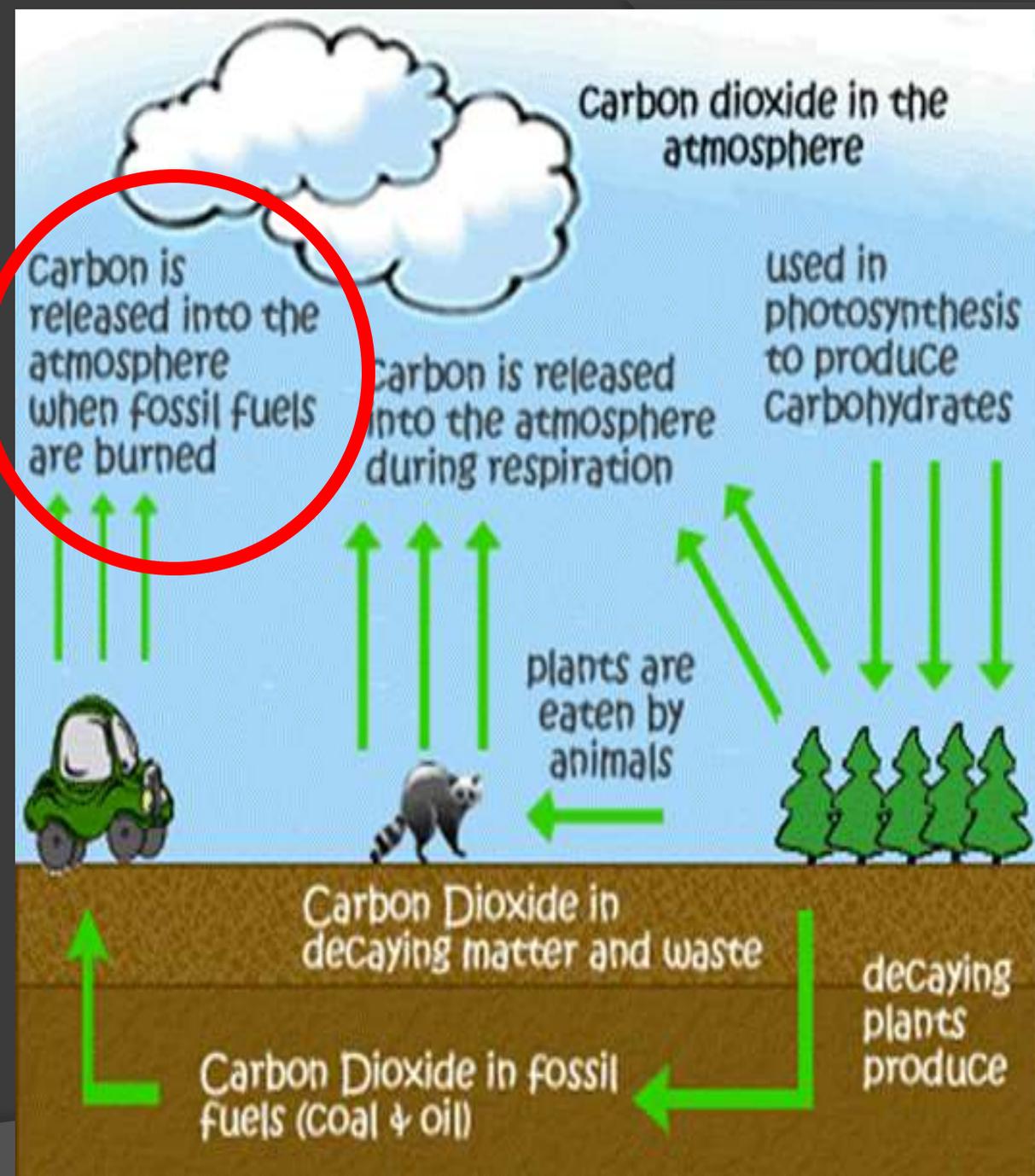
Decomposition

- Decomposers break down dead organisms.
- Millions of years old plants, animals, and waste decompose and turn into fossil fuels.



Human Impact

- **Fossil fuels** can be burned by automobiles, releasing carbon back into the atmosphere.



Carbon dioxide

1 Atmosphere Carbon dioxide gas is one form of carbon in the air.

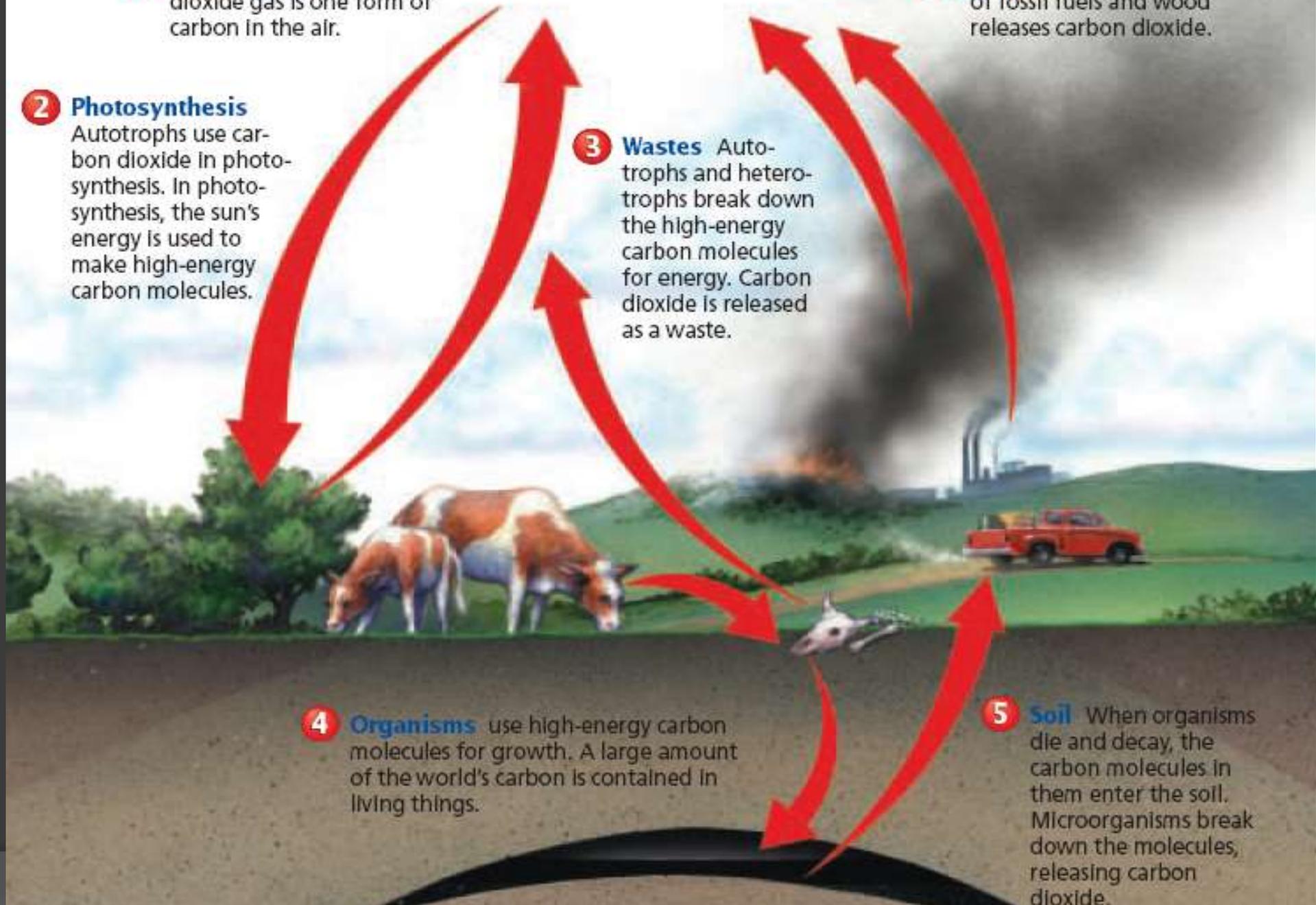
2 Photosynthesis Autotrophs use carbon dioxide in photosynthesis. In photosynthesis, the sun's energy is used to make high-energy carbon molecules.

3 Wastes Autotrophs and heterotrophs break down the high-energy carbon molecules for energy. Carbon dioxide is released as a waste.

7 Pollution Combustion of fossil fuels and wood releases carbon dioxide.

4 Organisms use high-energy carbon molecules for growth. A large amount of the world's carbon is contained in living things.

5 Soil When organisms die and decay, the carbon molecules in them enter the soil. Microorganisms break down the molecules, releasing carbon dioxide.



Carbon Cycle Game

- Label the next left page Carbon Cycle Game
- Start out at any station with 2 or fewer people
- Write the name of the location you start in and roll the die
- Look at the paper to see where you will go next, but before you go, write where you are going and how you are getting there
- Move to the next station and repeat for 15 rolls