

What a Cat Knows about Greenhouse Gases!

By George Heard



Cats just love to sit in the window! They always seem to find the warmest spot in the house — and why that happens to be in front of windows has something to do with greenhouse gases. When a window lets in light from the sun, that light can be trapped by the gases in the room. This keeps the light (and heat) from going back out of the window. This trapping of light as heat inside is what happens in a greenhouse, which helps warm-weather plants grow all year round.

We can think of the earth as a big greenhouse as well. Light from the sun comes in through the atmosphere, and some of it is trapped by gases. Some of it gets back out as well ... and that's a good thing! If all the light from the sun stayed on earth as heat, it would become too hot for plants to live.

Gases that are good at trapping this light as heat are called greenhouse gases. Some of them are natural, and some are man-made. Most cars have an exhaust pipe that adds a gas called carbon dioxide into the air, and carbon dioxide is really good at trapping that heat.

Greenhouse gases are a tricky balance. If we didn't have any, then Earth would be almost as cold as Mars, where water is frozen all the time. But if we have too many greenhouse gases,

Get to Know Some Greenhouse Gases!

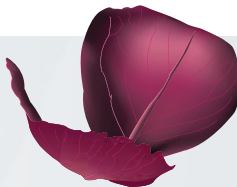
Name of gas	Natural or man-made?	Where does it come from?	What sinks are available?
Water vapor	Natural	Oceans, lakes, rivers	Cold temperatures lead to less water vapor
Carbon dioxide	Both	Rotting mulch (natural), burning fuel (man-made)	Trees and plants
Methane	Both	Marsh gas (natural), farming rice (man-made)	Oxygen and water in the upper atmosphere
Nitrous oxide	Both	Lightning (natural), fertilizer (man-made)	Light in the upper atmosphere
Halocarbons	Man-made	Refrigerators, making electronics	No known sinks

then the air would heat up, and that could cause strange weather as more water evaporates into the atmosphere.

The levels of greenhouse gases can go up and down. A process that makes the level of a greenhouse gas go down is called a **sink**. We need sinks to stop the amount of greenhouse gases from going up and up. Scientists are looking for ways to make sinks for man-made greenhouse gases, and to improve the sinks for gases that are both natural and man-made.

George Heard, Ph.D. is the Ruth and Leon Feldman Professor of Chemistry at the University of North Carolina Asheville and Chair of the American Chemical Society Committee on Community Activities.

2 Ways to Make Your Cabbage Juice Indicator ... Your Choice!



The Lose the Blues with CO₂ activity on page 6 needs a special liquid called an indicator made from red cabbage. We call it a red cabbage indicator, even though it starts out kind of blue!

Quick Method

1. With the help of your adult partner, put two or three leaves of red cabbage in a blender or food processor.
2. Add ¾ cup (about 175 mL) water. Blend for one minute.
3. Strain through a sieve and retain the liquid.

This is your red cabbage indicator.

Note: Any unused portions may be refrigerated for later use.

Soaking Method

1. Tear several leaves of red cabbage into small pieces and place them into a 1- or 2-cup container.
2. Add warm water to the container, stir, cover, and allow to sit until the water becomes uniform in color.
3. Strain the contents and retain the liquid.

