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they release that heat back into the atmosphere in all directions. Most of the heat from Earth's warmed surface goes into space, but the heat released from these gases causes the atmosphere to warm because they send some heat back to Earth. This process is called the **greenhouse effect**.

Gases that absorb and release heat in the atmosphere are called **greenhouse gases** (GHGs). Three of the most important greenhouse gases include water vapor (H<sub>2</sub>O), carbon dioxide (CO<sub>2</sub>), and methane (CH<sub>4</sub>). We would not be able to survive on Earth if we didn't have greenhouse gases—it would be too cold! These gases help to warm our planet. So, they are not bad gases—they are necessary for life on Earth!

A very important GHG is water vapor. Have you ever thought about why we are not worried about water vapor building up in the atmosphere? The amount of water vapor in the atmosphere stays about the same, though it's going up a little as the temperatures get warmer. If the amount of water gets too high, the water cycle takes care of it. Water condenses and falls as precipitation. However, we know that some GHGs are increasing in our atmosphere—carbon dioxide and methane, for example. They cannot fall out of the atmosphere as precipitation like water vapor can.