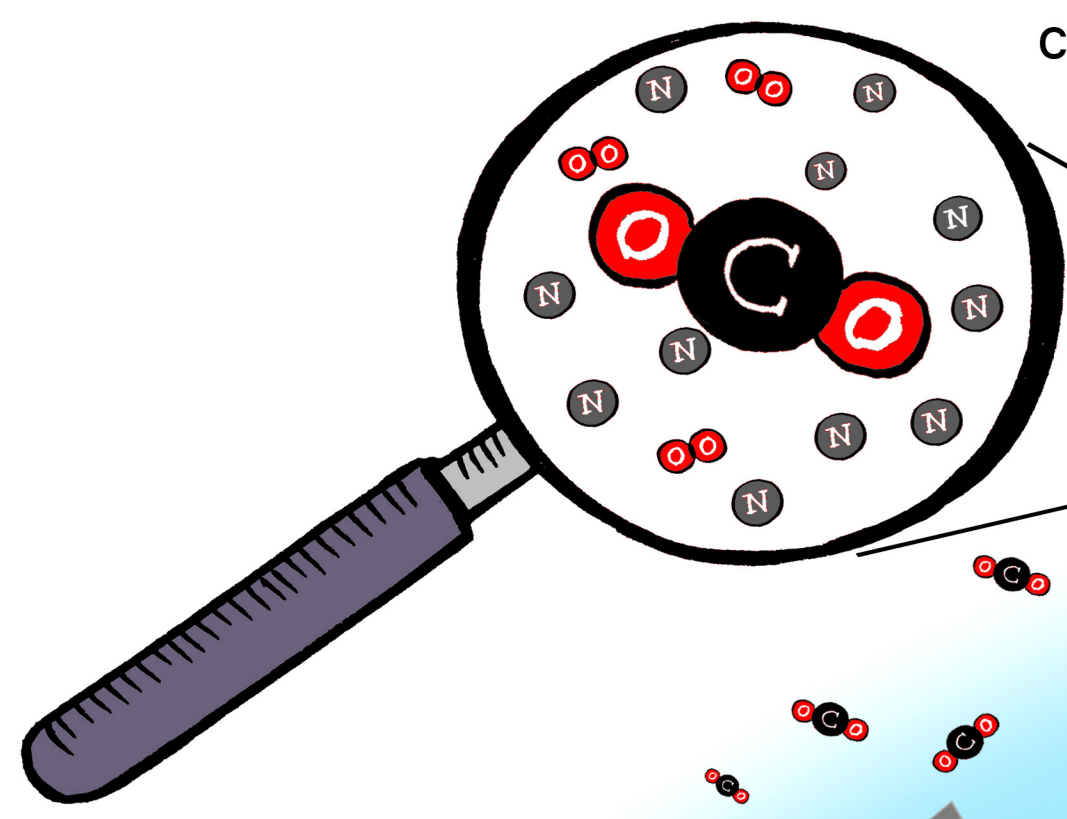


# WHAT IS CARBON? WHY SHOULD WE BE WORRIED?

① Carbon is naturally all around us. Our air naturally contains different gases, including carbon dioxide.

One carbon atom and two oxygen atoms bonded together create an invisible gas called carbon dioxide, CO<sub>2</sub>. CO<sub>2</sub>, oxygen and other gases form the Earth's atmosphere. Carbon is an element found in every living thing. Oxygen is another element in the air we breathe.

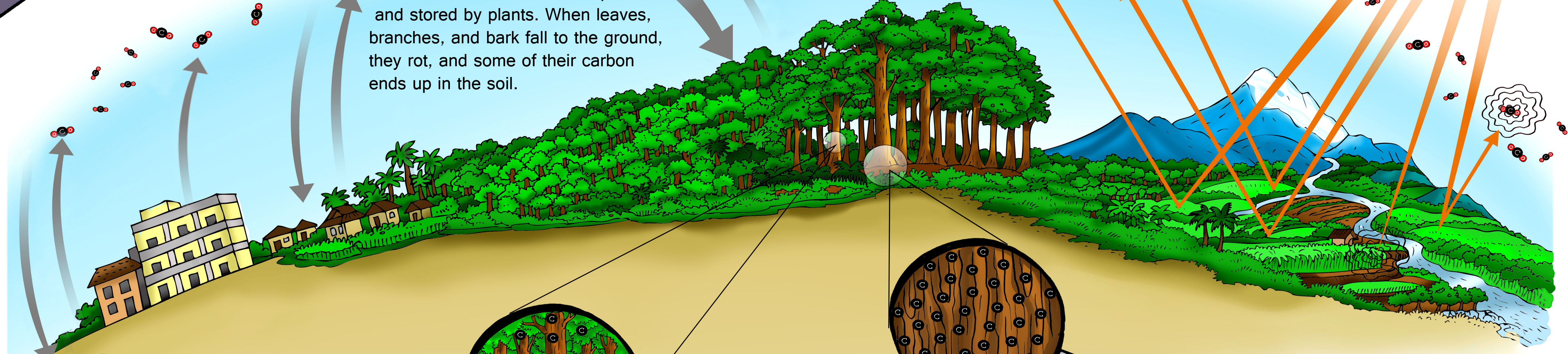
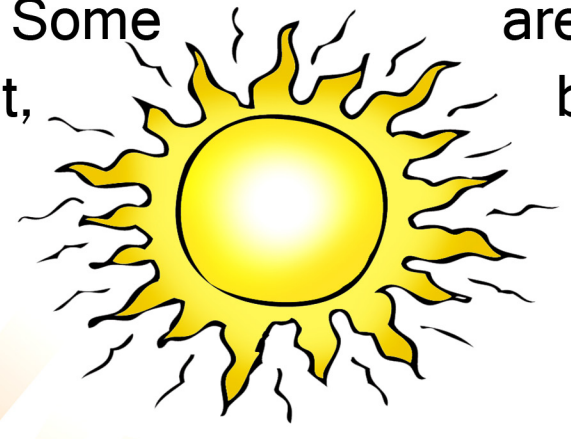


Carbon in the air is taken up and stored by plants. When leaves, branches, and bark fall to the ground, they rot, and some of their carbon ends up in the soil.

Also, carbon is released in the air in a number of ways. This overall exchange process is called the carbon cycle.

② The greenhouse effect supports life on earth by keeping warmth from the sun.

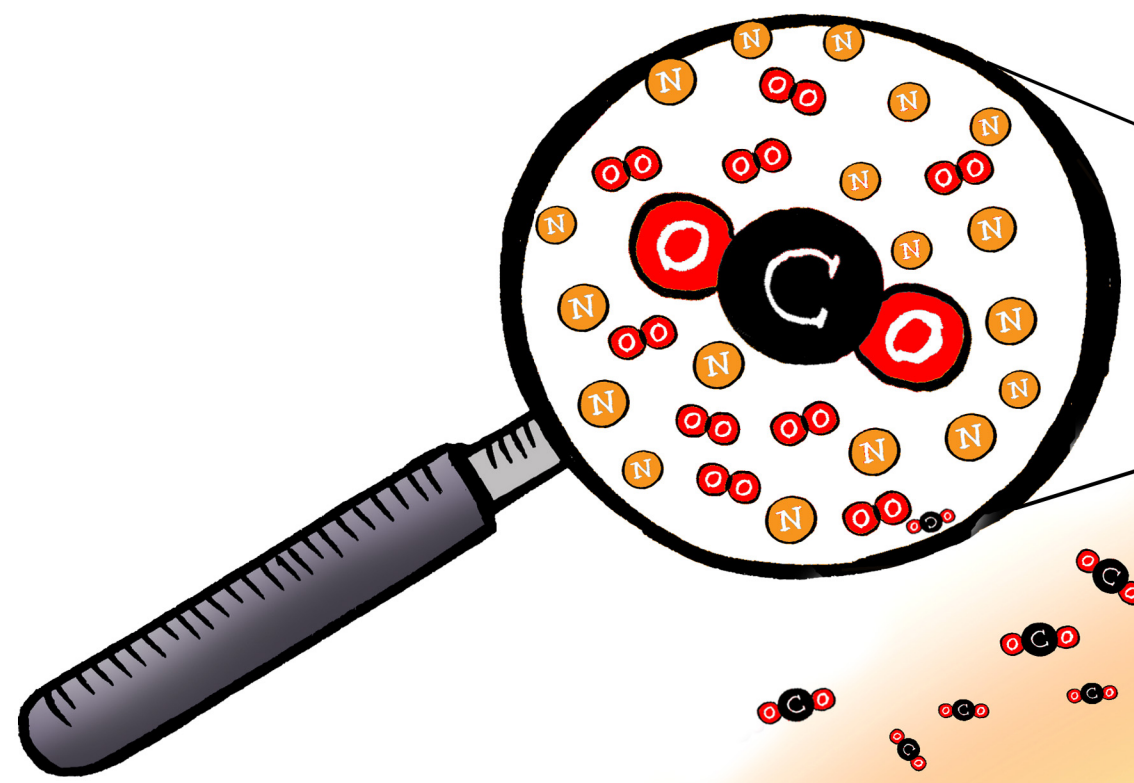
Rays from the sun pass through the Earth's atmosphere. Some of these rays heat up the atmosphere, as this heat is trapped by CO<sub>2</sub>. Some outer space, and this is how the earth loses heat, sunrays back out into space. This process is "greenhouse effect". Without the greenhouse would be too cold for plants or animals to live.



Plants take in CO<sub>2</sub> from the air, and use the 'carbon' component to make wood, leaves, stems and roots. About half the weight of dry wood is actually carbon. The heavier the wood is the more carbon that is stored. Forests thus store a lot of carbon in trees and soil.

Like forests, oceans also store large amounts of carbon, especially in the deep ocean, partly stored in aquatic plants and partly dissolved in the water.

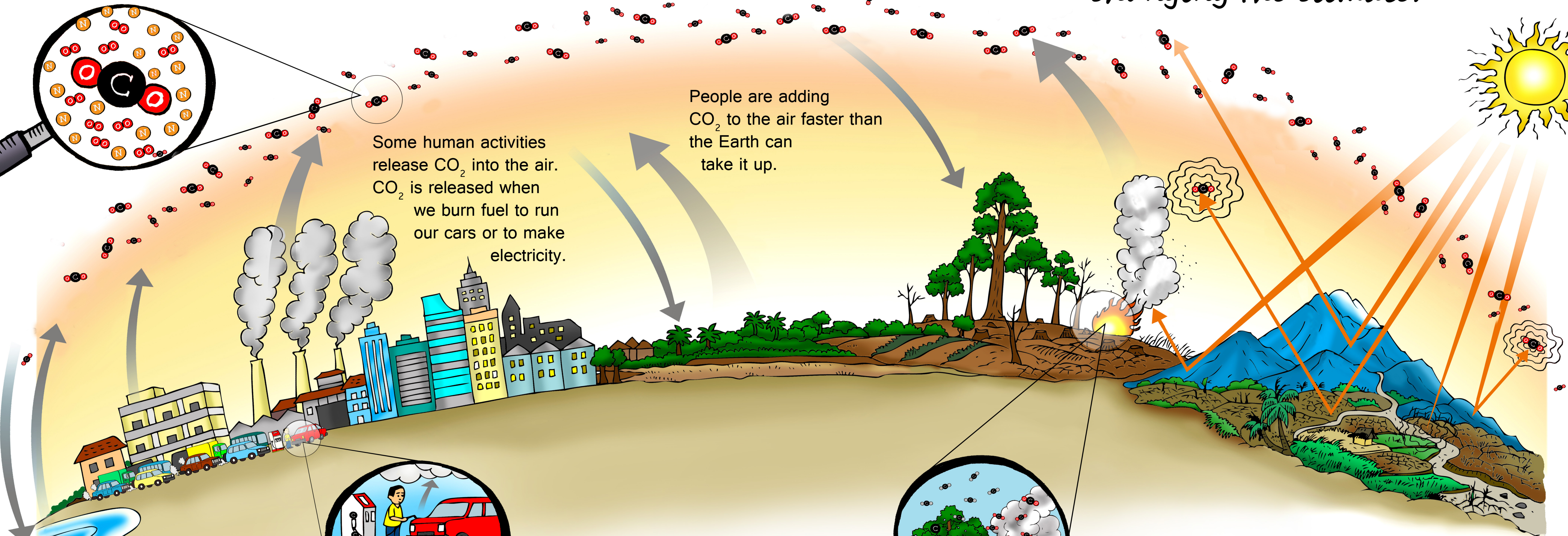
③ Human activities increase the amount of carbon in the air.



Some human activities release CO<sub>2</sub> into the air. CO<sub>2</sub> is released when we burn fuel to run our cars or to make electricity.

People are adding CO<sub>2</sub> to the air faster than the Earth can take it up.

④ Increased carbon in the air puts the greenhouse effect into over drive, changing the climate.



When trees are burnt they release their carbon back to the air. When forests are cleared and changed to agriculture, the land stores less carbon than before.

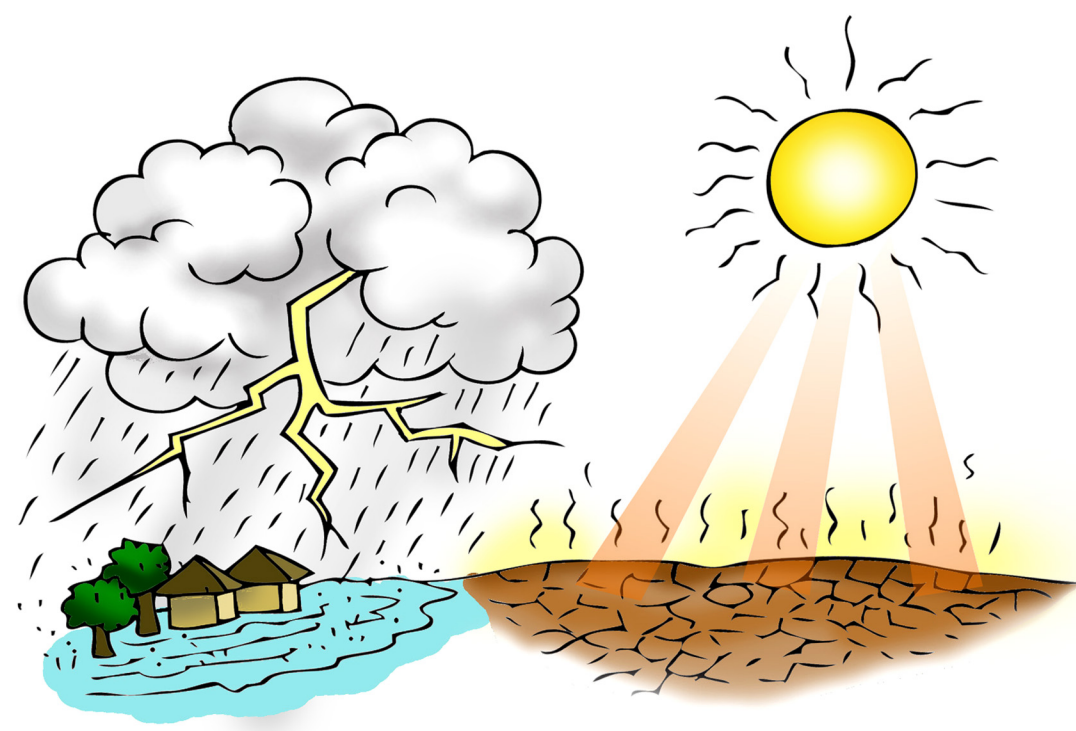
Rising levels of CO<sub>2</sub>, and other gases, released by human activities cause the Earth's temperature to increase. This is called 'Global Warming'. Rising air temperatures change weather including where and how often rain falls. As these weather patterns change it is called 'Global Climate Change'.

⑤ What do these changes mean?



## Rising temperatures

The hottest days of the year may become hotter because of rising global temperatures. Hot regions will have more extreme droughts and wildfires. Hurricanes and other tropical storms thrive over warm ocean water, so we may see more of them. As ocean temperatures increase, storms may become more violent.



## Changing rainfall and seasons

We may see changes in where, when and how much rain falls, causing too much rain in some places and not enough in others. As temperatures rise, seasons may become harder to predict and floods and droughts may become more extreme.



## More crop failure

The production of many agricultural crops in tropical regions may dwindle, because of lower rainfall and hotter temperatures. This will have major impacts on food availability. Diseases and crop pests may come to thrive in areas where farmers have never faced them before. Droughts, floods and storms may cause additional problems.



## Rising sea levels

Rising global temperatures cause water, currently frozen in ice caps and glaciers, to melt. This water causes the ocean water level to rise. Many low lying and coastal areas will flood, and small islands may completely disappear.

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