

# Air Pollution

*by Sophia*



## WHAT'S COVERED

In this lesson, we will cover the topic of air pollution. We will define air pollution and discuss its various sources. We will also cover the major outdoor air pollutants. Specifically, this lesson will cover the following:

## 1. What is Air Pollution?

Air pollution occurs when harmful materials are introduced into the air. An air pollutant is something that is harmful to humans and/or the environment. The vast majority of pollutants in the air are produced by human activities. This includes both indoor pollutants, which are pollutants present in homes and buildings, as well as outdoor pollutants, present in open spaces.

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## 2. Sources of Air Pollution

Pollutants are produced by a variety of sources. We can classify most pollutants into the following three main categories:

- Mobile
- Stationary
- Natural

In the following sections, we will discuss each of these categories.

### 2a. Mobile Sources

Mobile sources are those that can move about, such as cars, boats, or airplanes. Mobile air polluters are considered nonpoint sources because they are difficult to track and manage, much like nonpoint water polluters.



## 2b. Stationary Sources

Stationary sources of air pollution are fixed. They are considered point source polluters, and much like point sources of water pollution, they are easier to monitor and control. Some examples of stationary sources are a coal-fired power plant, oil refinery, or gas station.



### DID YOU KNOW

Approximately 50% of manmade polluters are stationary.



## 2c. Natural Sources

Natural sources can also cause air pollution. They include volcanoes and forest fires, like the one depicted below. Smog created by volcanoes can lead to acid rain, while forest fires can produce carbon monoxide and nitrogen oxides, which contribute to air pollution and negative human health impacts.



### 3. Outdoor Air Pollutants

There are many major outdoor air pollutants. The table below has a list of some common outdoor air pollutants.

Outdoor Air Pollutants	Description
Greenhouse gases	Greenhouse gases, such as carbon dioxide and methane, contribute to the greenhouse effect and climate change. These pollutants come primarily from coal, oil, and natural gas consumption.
Chlorofluorocarbons	Chlorofluorocarbons, or CFCs, come from aerosol sprays and refrigerators.
Sulfur and nitrogen oxide	Sulfur and nitrogen oxide come from coal, oil, and natural gas. In the United States, 60% of sulfur dioxides come from power plants.
Particulate matter	Particulate matter, or PM, comes from industries and manufacturing companies, specifically from the combustion of fossil fuels and their waste.
Ozone	While naturally created ozone present in Earth's ozone layer protects us from solar radiation high in the atmosphere, ground-level ozone can damage human health. Ground-level ozone comes from burning fossil fuels in lawnmowers, construction vehicles, and automobiles.

Lead and heavy metals	Lead and other heavy metals are other types of outdoor air pollution, and they come from burning fossil fuels.
Carbon monoxide	Carbon monoxide is another type of air pollution, and it comes from burning fossil fuels as well. Approximately 60% of carbon monoxide emissions come from mobile nonroad sources and highway vehicles.

Within the United States, the type and amount of pollution vary from region to region and state to state.



## SUMMARY

In this lesson, we learned about **air pollution**, which is essentially harmful materials that are present in the air. We learned about the three categories of **sources** of air pollution: **mobile**, **stationary**, and **natural sources**. We also learned about some major **outdoor air pollutants**.

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