

# POLLUTION

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Pollution is the introduction of contaminants into the environment.

Pollutants can be natural, such as volcanic ash and they can also be created by human activity, such as trash or runoff produced by factories.

Pollution is a global problem. Although urban areas are usually more polluted than the countryside, pollution can spread to remote places where no people live. For example, pesticides and other chemicals have been found in the Antarctic ice sheet.

All living things—from one-celled microbes to blue whales—depend on Earth's supply of air and water. When these resources are polluted, all forms of life are threatened.

The three major types of pollution are air pollution, water pollution, and land pollution.

## AIR POLLUTION

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Air pollution is the accumulation of hazardous substances into the atmosphere that danger human life and other living matter.

Sometimes, air pollution is visible. A person can see dark smoke pour from the exhaust pipes of large trucks or factories. More often air pollution is invisible. Polluted air can be dangerous, even if the pollutants are invisible.

### WHAT CAUSES THE AIR POLLUTION?

**Natural disasters** can cause air pollution to increase quickly. When volcanoes erupt, they eject volcanic ash and gases into the atmosphere. Volcanic gases can kill nearby residents and make the soil infertile for years.

Most air pollution is not natural. **Cars and factories** produce pollutants, which react with sunlight to produce smog or a thick fog. Smog can be brown or grayish blue, depending on which pollutants are in it.

**Greenhouse gases** are another source of air pollution. Those gases occur naturally in the atmosphere. In fact, they are necessary for life on Earth. They absorb sunlight reflected from Earth, preventing it from escaping into space. They keep Earth warm enough for people to live on it. This is called the **greenhouse effect**.

But human activities increased the amount of greenhouse gases in the atmosphere. This has increased the greenhouse effect, and average temperatures across the globe are rising. This increase in temperatures is called global warming.

## WHAT ARE THE RESULTS OF AIR POLLUTION?

**Global warming** is causing ice sheets and glaciers to melt. The melting ice is causing sea levels to rise. So, low-lying coastal regions will eventually be flooded. That means that entire nations, such as the islands of Maldives, are threatened by this climate change.

When air pollutants mix with moisture, they change into acids. They then fall back to earth as **acid rain**. It can kill the trees, it can devastate waterways and it can also wear away stone. It damaged many historic buildings and monuments.

## WATER POLLUTION

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Water pollution is the introduction of chemical, biological and physical matter into large bodies of water that degrade the quality of life that lives in it and consumes it.

Some polluted water looks muddy, smells bad, and has garbage floating in it, but some polluted water looks clean, but is filled with harmful chemicals you can't see or smell.

## WHAT CAUSES WATER POLLUTION?

Cars drip **oil** onto the street, and rain carries it into storm drains, which lead to waterways such as rivers and seas. Rain sometimes washes **chemical pesticides** off of plants and into streams.

Another cause of water pollution is **garbage**. Floating trash makes the river difficult to fish in. Aquatic animals such as fish and turtles mistake trash for food. The fish that are caught in a polluted river often have high levels of chemical toxins in their flesh.

## LAND POLLUTION

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Land pollution is pollution of the Earth's natural land surface by industrial, commercial, domestic and agricultural activities.

## WHAT CAUSES LAND POLLUTION?

Many of the same pollutants that foul the water also harm the land, for example, **pesticides and fertilizers**. They can harm plants, animals, and sometimes even people.

**Trash** is another form of land pollution. Around the world paper and plastic products mar the landscape.

## CONSEQUENCES OF AIR, WATER AND LAND POLLUTION ON HUMAN HEALTH

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Pollution can affect our health in many ways with both short-term and long-term effects. Some individuals are much more sensitive to pollutants than are others.

Examples of short-term effects include irritation to the eyes, nose and throat. Other symptoms can include headaches, nausea, and allergic reactions. Long-term health effects can include chronic respiratory disease, cancer, heart disease, and even damage to the brain, nerves, liver, or kidneys.

## OTHER TYPES OF POLLUTION

There are 2 other types of pollution – SOUND and LIGHT pollution.

**Sound or noise pollution** is excessive, displeasing human, animal, or machine-created environmental noise that disrupts the activity or balance of human or animal life. The source of most outdoor noise worldwide is mainly construction and transportation systems, including motor vehicle noise, aircraft noise, and rail noise. High noise levels can contribute to a rise in blood pressure and an increase in stress. In animals, noise can increase the risk of death and contribute to permanent hearing loss.

**Light pollution**, also known as photo pollution or luminous pollution, is excessive and in most cases unnecessary direct or indirect artificial light that increases the level of brightness in the environment, for example, roadside lamps, traffic lights, vehicle lights, big store and commercial sign lights and the lights that enlighten statues and buildings.

In most cases those lights are just unnecessary energy waste.

## REDUCING POLLUTION

Around the world, people and governments are making efforts to combat pollution. Recycling, for instance, is becoming more common. In recycling, trash is processed so its useful materials can be used again.

Some cities incinerate or burn their garbage. Incinerating trash gets rid of it, but it can release dangerous heavy metals and chemicals into the air. So while trash incinerators can help with the problem of land pollution, they sometimes add to the problem of air pollution.

The smoke from coal-burning power plants can be filtered and all factories should have purifying plants.

People and businesses that illegally dump pollutants into the land, water, and air should be fined for millions of dollars.

Reducing pollution requires environmental, political, and economic leadership. Developed nations must work to reduce and recycle their materials, while developing nations must work to strengthen their economies without destroying the environment.

## WHAT CAN WE, AS INDIVIDUALS, DO TO STOP POLLUTION?

- walk or cycle instead of taking a car
- buy organic food
- turn off the lights when we leave the room
- compost green waste
- pick up after our pets
- buy recycled products

**10 Most Polluted Countries in the World (2011)**

1. Mongolia
2. Botswana
3. Pakistan
4. Senegal
5. Saudi Arabia
6. Egypt
7. United Arab Emirates
8. Iran
9. Nigeria
10. Kuwait

**10 Most Air-Polluted Cities in the U.S. (2011)**

1. Bakersfield, California
2. Fresno, California
3. Riverside/San Bernardino/Ontario, California
4. Fairbanks, Alaska
5. Modesto, California
6. Hilo, Hawaii
7. Visalia-Porterville, California
8. Hanford-Corcoran, California
9. San Diego, California
10. Pittsburgh, Pennsylvania

**Carbon Dioxide Emissions by Country (2009):**

1. China: +7.5%
2. United States: -7.0%
3. India: +8.7%
4. Russia: -7.4%
5. Japan: -9.7%
6. Germany: -7.0%
7. Canada: -9.6%
8. South Korea: +1.2%
9. Iran: +3.2%
10. United Kingdom: -7.8%