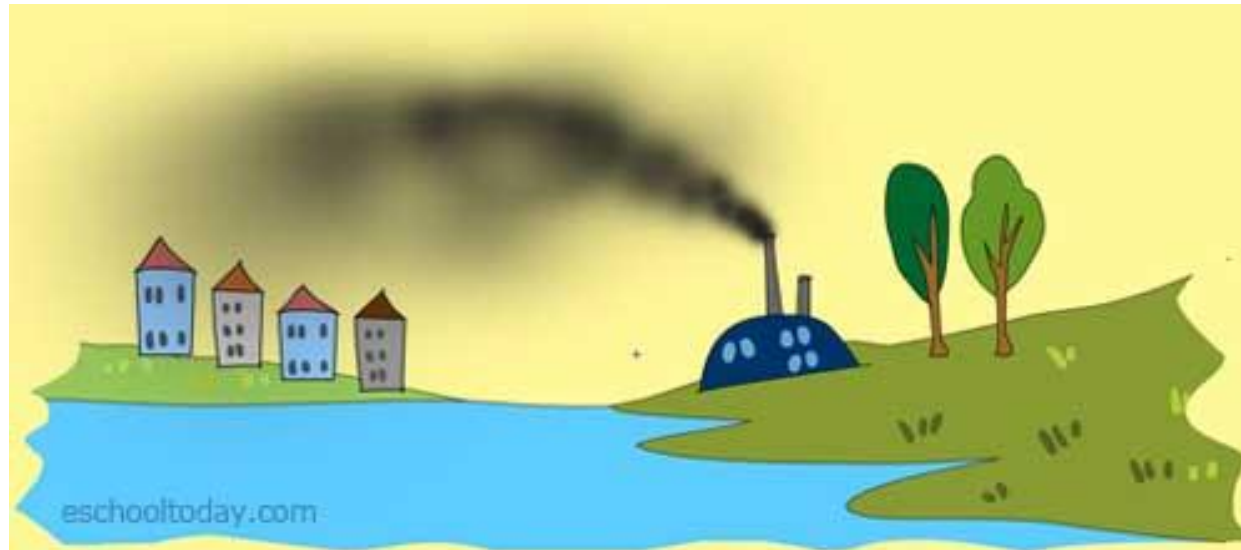


AIR POLLUTION



- WHO reports that in 2012 around 7 million people died - one in eight of total global deaths – as a result of air pollution exposure. This finding more than doubles previous estimates and confirms that air pollution is now the world's largest single environmental health risk.
- Air pollutants (dangerous things that make the air unclean) come in the form of gases or particles.
- It is estimated that you breathe 20,000 liters of air each day. This means the more polluted the air is, the more we breathe into our lungs dangerous chemicals.
- Air can be polluted both indoors and outdoors. Tobacco and other kinds of smoking are examples of indoor air pollution.
- Sick Building Syndrome is a health condition related to pesticides, insecticides and chemicals we use at home and offices.
- In the great "Smog Disaster" in London in 1952, four thousand people died in a few days due to the high concentrations of pollution.

What is air pollution?

- Air pollution occurs when there is a high concentration of certain substances that causes the atmospheric environment to become toxic enough to have adverse impacts on every aspects of environment.
- occurs when gases, dust particles, fumes (or smoke) or odour are introduced into the atmosphere in a way that makes it harmful to humans, animals and plant.
- The Earth is surrounded by a blanket of air (made up of various gases) called the atmosphere.
- The atmosphere helps protect the Earth and allow life to exist.
- Any additional gas, particles or odours that are introduced into the air (either by nature or human activity) to distort this natural balance and cause harm to living things can be called air pollution.

There are two types of pollutants

- Things that pollute the air are called *pollutants*.
- Primary pollutants are those gases or particles that are pumped into the air to make it unclean. They include carbon monoxide from automobile (cars) exhausts and sulfur dioxide from the combustion of coal.

Secondary pollutants: When pollutants in the air mix up in a chemical reaction, they form an even more dangerous chemical.

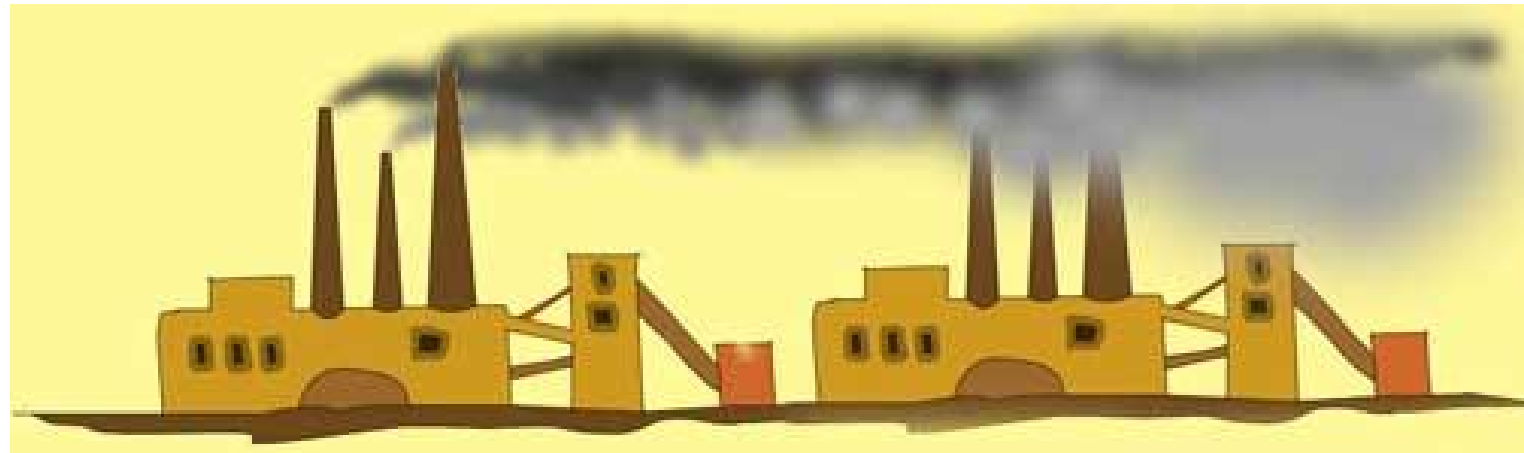
Photochemical smog is an example of this, and is a secondary pollutant.

What causes air pollution?

- Air pollution can result from both **human** and **natural** actions.
- Natural events that pollute the air include forest fires, volcanic eruptions, wind erosion, pollen dispersal, evaporation of organic compounds and natural radioactivity. Pollution from natural occurrences is not very often.

Human activities that result in air pollution include:

1. Emissions from industries and manufacturing activities
2. Burning Fossil Fuels
3. Household and Farming Chemicals

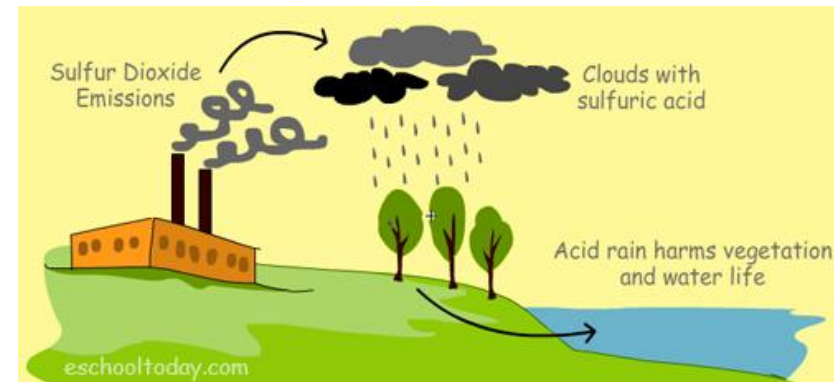


What are the common air pollutants around?



What are the effects of air pollution?

- Acidification:
- Chemical reactions involving air pollutants can create acidic compounds which can cause harm to vegetation and buildings. Sometimes, when an air pollutant, such as sulfuric acid combines with the water droplets that make up clouds, the water droplets become acidic, forming acid rain. When acid rain falls over an area, it can kill trees and harm animals, fish, and other wildlife.



- Eutrophication:
- Rain can carry and deposit the Nitrogen in some pollutants on rivers and soils. This will adversely affect the nutrients in the soil and water bodies. This can result in algae growth in lakes and water bodies, and make conditions for other living organism harmful.
- Ground-level ozone:
- Chemical reactions involving air pollutants create a poisonous gas ozone (O₃). Gas Ozone can affect people's health and can damage vegetation types and some animal life too.

- Particulate matter:

Air pollutants can be in the form of particulate matter which can be very harmful to our health. The level of effect usually depends on the length of time of exposure, as well the kind and concentration of chemicals and particles exposed to.

Air pollution prevention, monitoring and solution.

- Government (or community) level prevention
 - introducing green energy
 - forcing companies to be more responsible
 - energy efficient vehicles
- Individual Level Prevention
 - use the bus, train or bicycles
 - Use energy wisely
 - Recycle and re-use things.

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What caused the Great Smog?



Peter Cockroft

Meteorologist, BBC London

Winter arrived early in 1952 and very cold snowy weather in November continued into December.

Londoners tried to keep warm by burning lots of coal on their home fires. This extra domestic smoke added to that belched out by power stations and factory chimneys.

As an area of high pressure arrived over the capital, the skies cleared and the wind fell light. On 5 December fog started to form.

In a "high" the air is pushing down - exerting a higher pressure. So, anything in the lowest part of the atmosphere becomes trapped; in this case the noxious combination of smoke and fog - smog.

Because the winds remained light there was nothing to blow it away.

Thousands of tonnes of soot and carbon dioxide were pumped into London's air, made worse by some of the fog droplets turning into harmful acids.

Little wonder then, at the time, Londoners described "gasping for air".