

Pollution Of Air And Water
SUMMARY

Air Pollution

Substances that cause **harmful changes** in the air are called **pollutants**. **Air pollution** is caused due to the presence of **pollutants** in the air.

Air pollution is caused by **burning fossil fuels**, like **coal** and **petroleum**, in **industries**, **power plants** and **vehicles**, and by **burning of firewood** and **dung cakes**. Pollutants are also released into the air by **natural events** like a **dust storm**, **forest fire** or **volcanic eruption**.

Incomplete burning of fossil fuels, like **petrol** and **diesel**, results in the production of **colourless**, **odourless** and **toxic carbon monoxide gas**.

Smog is a mix, in the air, of **smoke** and **chemicals with fog**.

The **chemical components** of smog can include **ozone**, **sulphur dioxide**, **nitrogen dioxide** and **carbon monoxide**.

Smog can trigger **breathing difficulties** like **asthma** and **coughing**.

Pollutants like **sulphur dioxide** and **nitrogen dioxide** are released in large quantities by **petroleum refineries**.

These emissions can cause **respiratory problems** and also **permanent lung damage**.

CFCs or **chlorofluorocarbons** are **synthetic products** that contain **carbon**, **chlorine** and **fluorine**. They were formerly used as a **refrigerant** and as a **propellant** in **aerosol** or **air sprays**.

CFCs contribute to the **depletion of the ozone layer** that protects us from the **harmful ultraviolet rays** of the **sun**.

Soot is released when **automobiles** burn **fossil fuels**, like **petrol** and **diesel**.

Pollutants like **sulphur dioxide** and **nitrogen dioxide**, which are produced by industries like **rubber processing**, **automobile chemicals** and the **Mathura oil refinery** near **Agra**, are responsible for the **decolourisation of the Taj Mahal**.

These gases react with **water vapour** in the **atmosphere** and form **sulphuric acid** and **nitric acid**. **Precipitation** carries these acids back to the earth as **acid rain**.

The **corrosion** of the Taj Mahal due to acid rain is called '**marble cancer**.'

Global warming has already started **melting the polar ice caps**, which has resulted in a rise in the **global sea level**.

Gases, like **methane**, **nitrous oxide** and **water vapour**, also contribute to the **greenhouse effect**, and, along with **carbon dioxide**, are collectively called the **greenhouse gases**.

Steps to prevent air pollution:

Use of fuels like **CNG** and **unleaded petrol** in **automobiles**.

Switching to **alternative fuels**, like **solar energy**, **hydropower** and **wind energy**.

Planting trees.

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Travelling to school on a **bicycle** or on **public transport** or **car pooling**.

Avoiding the **burning of leaves, trash** and **vegetable matter**.

Restricting **cigarette smoking**.

Water Pollution

Water covers **two-thirds** of the **earth's surface** and makes up **75 per cent of the human body**.

A **water body** is said to be **polluted** when **toxic substances** damage it, making it **undrinkable** and also **dangerous** for **organisms** to live in it.

Harmful substances, like **sewage, silt, toxic chemicals** and **domestic waste**, are called **water pollutants**. They **spoil the quality of water** by altering its **smell** and **colour**, and render it **unfit for drinking**.

Pollution can enter a body of water in many ways, such as **domestic sewage, agricultural run-off** containing **fertilisers and pesticides, eroded soil, acid rain, chemicals** released from **industries** or **other wastes** from **cities and towns**.

At places along the **Ganga**, people **bathe, wash clothes** and even defecate in the water. They also throw huge quantities of **garbage, flowers, idols of gods and goddesses, untreated sewage, animal carcasses** and **non-biodegradable polythene bags** directly into the **river**.

Chemical contamination of water due to **chemicals**, such as **compounds of arsenic, fluorides and lead**, cause **plants and animals** to die. The soil is also affected by **polluted water**, causing changes in its **acidity**, and, therefore, the **growth of plant life**.

Polluted water is **unsuitable** for **drinking, recreation, agriculture** and **industry**.

Contaminated water destroys **aquatic life** and **reduces its reproductive ability**.

Water pollution drastically reduces the quantity of **dissolved oxygen** in water, which results in the **death of aquatic organisms**. **Anaerobic micro-organisms** release gases like **methane and hydrogen sulphide**, leaving a **foul-smelling, waste-filled body of water**.

The large quantities of **chemicals** that are **washed** in from the **fields** are responsible for the **excessive growth of algae**. Once the **algae die**, it serves as a **food for bacteria**. As a result, a **lot of oxygen** in the water is used up and many **aquatic organisms** die.

Water that is **suitable for drinking** is called **potable water**. **Sewage treatment plants** treat **wastewater** to purify it before releasing it back into **rivers** and **lakes**. **Municipal bodies** treat **water** before supplying it to our **households**.

Some popular ways of making water potable are:

- Using **candle type water filters**
- **Boiling**
- **Chlorination**

Reduce, reuse and recycle is a **popular mantra** and one that is so important for us to **practise**.

Steps to **conserve water**:

Rain water harvesting

Using **drip irrigation** method in **agriculture**

Reusing the water used to **wash vegetables**

Minimising water consumption