

Our Environment

Every living thing has its own **environment**. A fish in a river has a different environment than a tiger in a forest or a human in a city. Each environment has living and non-living things.

All needs of a living thing are fulfilled by the environment. We get food, air, water, shelter, clothes, and many other things from our environment.

Pollution

Humans are constantly changing the environment according to their needs.

We have cut large areas of forests to make cities. Do you think this is good for the environment? What do you think will happen to the animals living in the forest?

How do you think the air, water and soil will get affected?

Activities such as cutting down trees, making more factories and burning of fuel harm the air. **Sewage** from homes and waste water from factories dirty the river water. Cutting down of trees, dumping of **garbage** and factory wastes on land affect the soil.

We are harming our environment by putting in harmful substances in the air we breathe, the water that we drink, and the soil in which we grow our crops. These harmful substances are called **pollutants**. When these get into air, water or soil, we say that they have become **polluted**.

Air Pollution



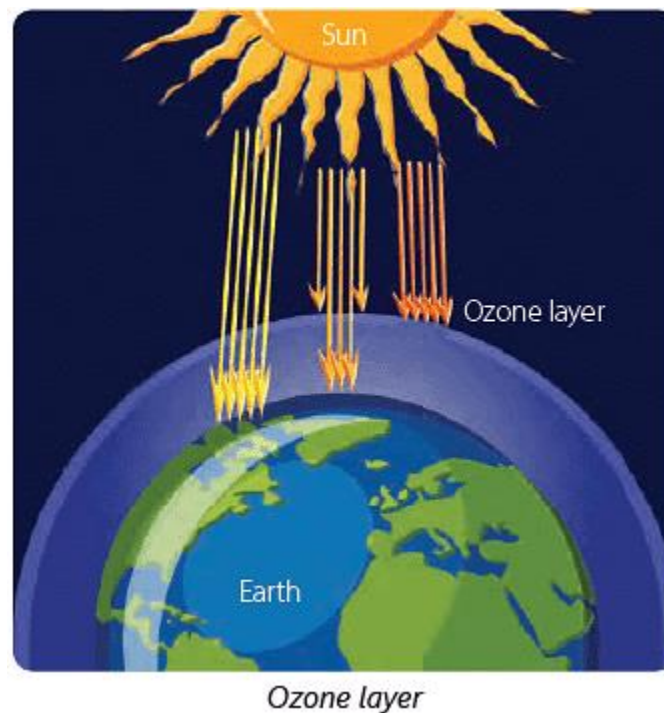
Air pollution

- Air becomes polluted with
- dust particles

- fumes from vehicles
- smoke from factories, power generators or burning wood
- increase in the amount of gases such as carbon dioxide and **methane** in the air

When we breathe polluted air, harmful substances get into our body. The air during Diwali gets very heavily polluted. What can you do to prevent this?

Find out if anyone you know has a disease called **asthma**. Find out what happens when people with this disease breathe heavily polluted air.



The Sun gives out some dangerous rays, which are bad for our eyes and skin. They are called **ultraviolet rays**. They can cause diseases such as cancer. Fortunately, a gas called **ozone** is present high up in the atmosphere. It absorbs these rays and saves us from them. But air pollution is removing ozone from the atmosphere. This can be very bad for our health.

Global Warming



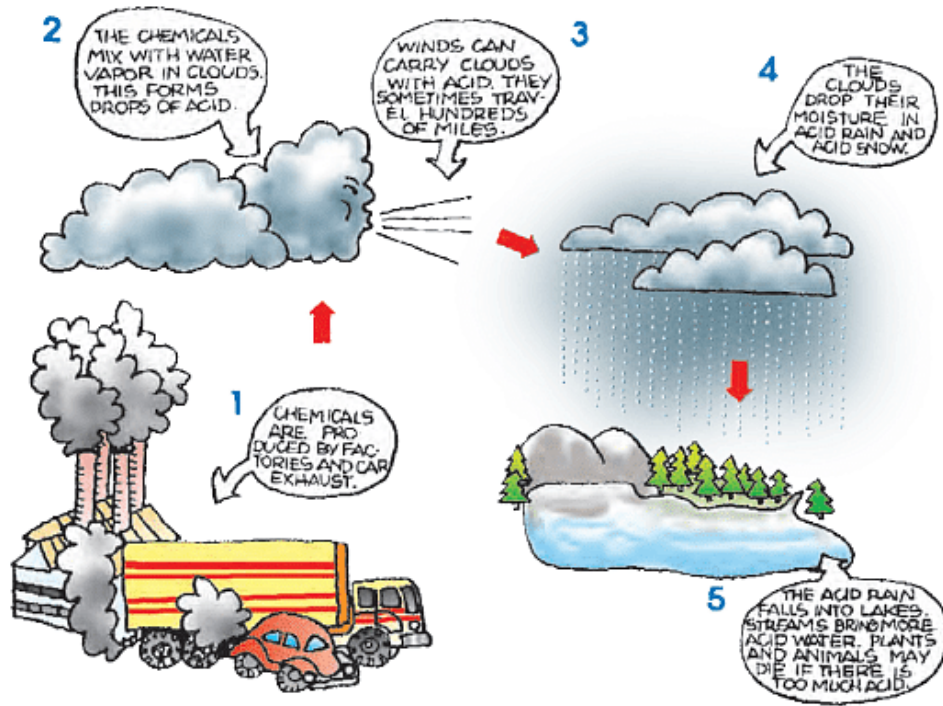
We breathe in oxygen from the air and give out carbon dioxide. Trees take away carbon dioxide and provide oxygen to the air. What do you think would be the result of deforestation or cutting down trees?

The Earth's atmosphere gets heated by the Sun. But increase in the carbon dioxide in the air prevents this heat from escaping. So the atmosphere warms up. This is called **global warming**. Scientists believe that the Earth has become warmer over the last 100 years because of increase in carbon dioxide in the atmosphere. This may have resulted in melting of some of the ice near the poles, causing the water level in the oceans to go up. In future, cities near the sea may get covered in sea water. How do you think this will harm us?

Acid Rain

Acids are substances that will burn your hand if you touch them. If acid falls on the marble of which the Taj Mahal is made, it will 'eat' the marble. Imagine what will happen if acid falls as rain.

Acid rain has been seen in certain parts of the world. Fortunately, however, the acid is not strong enough to burn your skin. But it does damage plants and buildings, and affects the soil. The illustration shows how acid rain occurs.



Water Pollution

Water gets polluted when

- Sewage or waste water is thrown into rivers and waterways without first being cleaned
- Detergents used for cleaning activities enter into the water
- Chemicals from farm wastes and pesticides get into the water
- Waste water and chemicals from factories are discharged into rivers
- Silt from construction sites gets into water
- Random trash is dumped directly into rivers



Water pollution

Drinking polluted water can cause dangerous diseases such as typhoid, diarrhoea or dysentery. Germs and insects such as flies, mosquitoes breed in dirty water and cause diseases. Poisonous chemicals from factories affect fish and other water animals and plants. On several occasions, fish in rivers have died due to these chemicals. If we eat such fish, we will also fall ill.

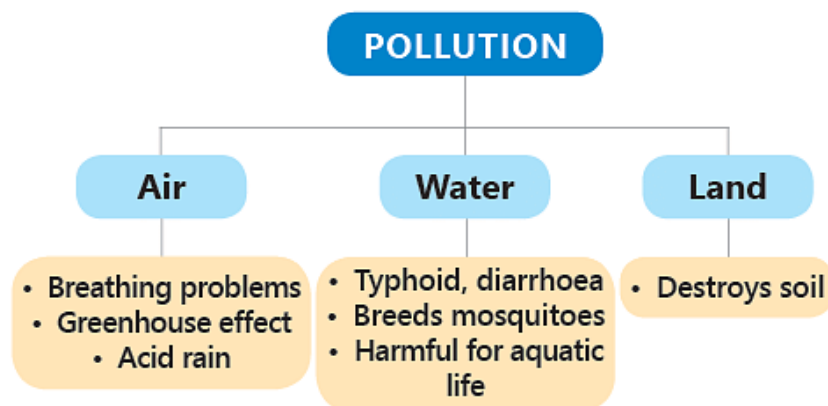
Land Pollution



Land pollution

Land pollution is the deterioration or destruction of the soil as a result of human activities. Land pollution occurs because of

- dumping toxic chemicals near industrial areas
- cutting down of trees, which results in the soil being eroded or blown away
- construction activities to build houses and infrastructure made necessary due to increasing population
- pesticides from agricultural fields
- animal waste and open defecation by people
- dumping of garbage and plastic bags



Types of Waste

Based on their properties wastes can be divided into two types — biodegradable and non-biodegradable. Both types of wastes should be collected in separate bins and disposed separately.



Biodegradable waste or wet waste consists of materials that rot and mix with the soil after some time. Wastes from plants and animals, fruit and vegetable peels, meat and bones, flowers, leaves, paper and pencil shavings are biodegradable. Biodegradable wastes are normally buried in the soil. Small organisms present in the soil make them rot and convert them into a manure called **compost**. Plants use the nutrients from this manure.



Non-biodegradable waste or dry waste consists of materials that do not rot and hence are more difficult to dispose. This includes plastic bags, packaging material, metal cans, glass bottles and broken glass pieces.

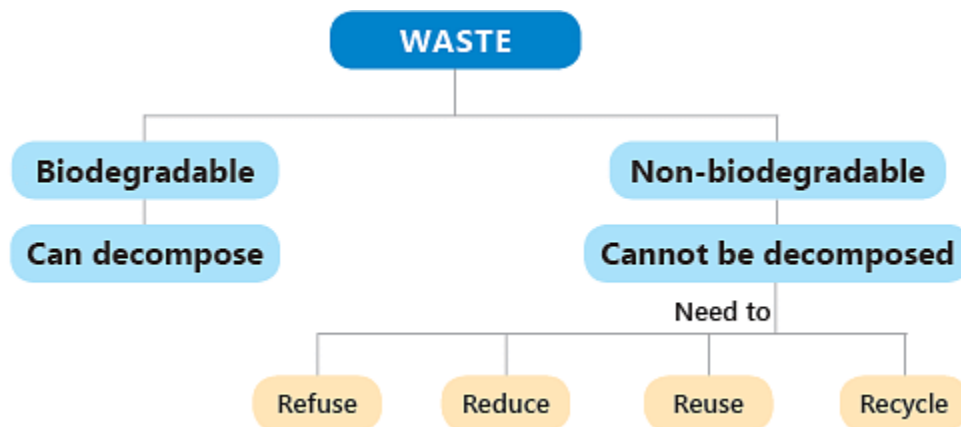
You can help to reduce non-biodegradable waste by following the 4R rule.

Refuse things that will add to garbage. Refuse plastic bags from shopkeepers and carry cloth bags for shopping.

Reduce the use of things that will create garbage. Buy only as much as you need. Buy goods that have less packaging. Attractively packaged products are more expensive because you are paying for the packaging as well. Also, you create more garbage by buying such products.

Reuse things as much as possible. You can use the same plastic bag for shopping a number of times.

Recycle by using waste materials to make useful things. Waste newspapers can be used to make paper envelopes instead of throwing them away.



Preventing Pollution

Earth is a beautiful living planet. It provides us with food, shelter and most of our requirements. But we humans are misusing the Earth's bounty. We have a responsibility to protect our planet from deterioration and to handover a clean and green planet to our future generations. Our combined efforts can protect Earth from further deterioration.



Ways to reduce pollution

1. Walk or ride a bike for short trips. Arrange carpools and take public transport for longer trips. Get regular vehicle pollution checks done and switch to CNG vehicles. This will reduce air pollution.
2. Factories should be located away from the cities. Industrial processes should be modified to produce less waste. This waste must be treated to make it less toxic.
3. Avoid burning leaves, trash, and other materials.
4. Grow plants and trees around your house. Encourage everyone to do the same. Plants clean the air and make it better for us to breathe.
5. Waste segregation must be made compulsory. Biodegradable waste should be converted into compost. As far as possible, non-biodegradable waste should be recycled. Do not dump garbage on land or into water bodies.
6. Reduce the use of plastic products. Do not throw plastic bags and packets in the open. They block drains, which overflow and dirty the surroundings. Stagnant water breeds mosquitoes which cause disease. The use of plastic bags has already been banned in many cities. Luckily a lot of establishments have also stopped the use of single use plastics such as plastic straws!
7. Stop people from relieving themselves in the open. This makes the surroundings dirty and smelly and gives rise to germs.
8. Turn off lights which are not in use.

Tips:

On 2 October 2014, the Government of India launched a national program called Swachh Bharat Abhiyan (Clean India Mission). It is India's biggest ever cleanliness drive with a very large number of government employees and school and college students participating in it. It covers 4,041 cities and towns across India. It aims to improve the levels of cleanliness by proper management of waste. It also aims to end the practise of people relieving themselves in the open by making a very large number of toilets.

In Brief

1. Harmful substances in the air, water, and soil are called pollutants.
2. Dust, fumes, smoke and greenhouse gases cause air pollution.
3. Air pollution is removing ozone which protects the Earth from ultraviolet rays.
4. Acid rain damages plants, buildings, and the soil.
5. Discharge of sewage, detergents, chemicals from farm wastes, pesticides and factories causes water pollution.
6. Land pollution is the deterioration of soil as a result of human activities.
7. Waste is of two types—biodegradable waste which consists of materials that rot and mix with the soil after some time, and non-biodegradable waste which consists of materials that do not rot.
8. We can reduce non-biodegradable waste by following the 4R rule—refuse, reduce, reuse, recycle.
9. We need to use resources wisely to prevent deterioration of Earth.