



Exercise Questions

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1. What are the different ways in which water gets contaminated?

Soln:

The different ways in which the water gets contaminated are listed below:

- i) **Industrial waste:** The harmful chemical wastes get released by the industries into water sources.
- ii) **Sewage waste:** Kitchen, laundry, and toilets release waste materials, and this pollutes water.
- iii) **Agricultural chemicals:** Excessive amounts of pesticides and fertilizers are used by farmers to enhance crop production. Rains and floods carry these harmful chemicals to water bodies, which results in water pollution.

2. At an individual level, how can you help reduce air pollution?

Soln:

We can take the following steps to reduce air pollution:

- i) We should avoid using personal cars and opt for public transport as much as possible.
- ii) We should properly dispose of the garbage and not burn it.
- iii) For shorter distances, avoid vehicles.
- iv) We should control the number of emissions from household chimneys and vehicles.
- v) We should replace our vehicle fuel, diesel and petrol with LPG and CNG.

3. Clear, transparent water is always fit for drinking. Comment.

Soln:

No, we don't agree with the statement that clear water is always fit for drinking because water might appear clean, but it may contain some disease-causing micro-organisms and several other dissolved impurities. Hence, we advise purifying the water by boiling it or by any purifying system before drinking it.

4. You are a member of the municipal body of your town. Make a list of measures that would help your town to ensure the supply of clean water to all its residents.

Soln:

The following are the measures taken by us to ensure the supply of clean water to our town residents: a)

We clean the area around the water pipes.

b) The main water source has to be built in a clean surroundings and should be maintained properly.

c) Chemical methods such as chlorination must be used for purifying water.

5. Explain the differences between pure air and polluted air.



Soln:

The composition of pure air contains 78% nitrogen, 21% oxygen and 0.03% carbon dioxide. Besides these, there are some other gases like methane, argon, ozone and water vapours'. The air is said to be polluted when the composition of air is altered by the addition of harmful substances or gases such as sulphur dioxide, carbon monoxide, nitrogen dioxide and particulate matter.

6. Explain circumstances leading to acid rain. How does acid rain affect us?

Soln:

Sulphur dioxide and nitrogen dioxide are the type of pollutants which are released into the atmosphere by the burning of fossil fuels like diesel and coal. These pollutants react with the water vapours present in the atmosphere to form nitric acid and sulphuric acid, respectively. By precipitation, these acids come down and form acid rain.

Effects caused by acid rain: a)

It destroys the crops.

b) Harmful for buildings, especially those made of white marble like the Taj Mahal.

7. Which of the following is not a greenhouse gas?

(a) Carbon dioxide

(b) Sulphur dioxide

(c) Methane (d) Nitrogen **Soln:**

The answer is (d) Nitrogen

8. Describe the 'Green House Effect' in your own words.

Soln:

The greenhouse effect is the cause of global warming, i.e., overall increase in the temperature of the Earth. The greenhouse gases cause the greenhouse effect. Examples of greenhouse gases include methane, CO₂ and water vapour. When solar radiation reaches the Earth, some radiation is absorbed by the Earth and then released back into the atmosphere. Greenhouse gases present in the atmosphere trap these radiations and do not allow the heat to leave. This helps our planet in keeping warm and thus helps in human survival. However, an indiscriminate increase in the level of greenhouse gases can lead to an excessive increase in the Earth's temperature leading to global warming.

9. Prepare a brief speech on global warming. You have to deliver the speech in your class.

Soln:

The increase in the average temperature of the Earth's surface is known as global warming. It occurs due to the increased concentration of greenhouse gases in the atmosphere. The greenhouse gases include methane, CO₂, and water vapour. These gases trap the solar radiation released back by the earth, which results in keeping our planet warm and helps in human survival. However, an increase in these gases can lead to an increase in the earth's temperature resulting in global warming.



10. Describe the threat to the beauty of the Taj Mahal.

Soln:

The major threat to the Taj Mahal is acid rain. When the acid rain falls on the Taj, which is completely made of marble, they react with marble to form a powder-like substance which is then washed away by the rain. This phenomenon is known as marble cancer. In addition, the soot particles emitted from the Mathura oil refinery located near Agra are leading to the yellowing of the Taj Mahal marble.

11. Why does the increased level of nutrients in the water affect the survival of aquatic organisms?

Soln:

An increase in the level of nutrients in the water body leads to an excessive increase in the population of algae in the water body. When these algae die, they serve as food for decomposers. A lot of oxygen is utilized in this process, consequently leading to a decrease in the level of oxygen dissolved in the water body. This, in turn, causes fish and aquatic organisms to die.



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