



Class: 5

Subject: Science

Lesson-10: Air and water

Prepared By: Ms. Deepali Powar

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**I. Key words:**

- |                 |                   |
|-----------------|-------------------|
| 1. Atmosphere   | 7. Photosynthesis |
| 2. Troposphere  | 8. Sedimentation  |
| 3. Stratosphere | 9. Decantation    |
| 4. Mesosphere   | 10. Distillation  |
| 5. Thermosphere | 11. Impurity      |
| 6. Exosphere    |                   |

**II. Pre activity: - Write some uses of air and water.**

**III. Name the following.**

**Q.1. Name two methods that are used to remove insoluble impurities.**

Ans- Filtration and Sedimentation

**Q.2. Which gas is used for protection of our skin from UV rays?**

Ans- Ozone

**Q.3. Which gas is used in the process of photosynthesis?**

Ans- Carbon dioxide

**Q.4. Which gas is used by plants to create food?**

Ans- Carbon dioxide

**IV. Short answers questions.**

**Q. 1. What is atmosphere?**

Ans- The Earth is surrounded by an envelope of air called the atmosphere. Multiple invisible gases come together to form the atmosphere.

**Q. 2. Why do we need to carry oxygen cylinders while going up a mountain?**

Ans- As we go higher and higher in altitude, the layer of air becomes thinner and thinner; making it difficult to breathe oxygen from air directly. Thus, we need to carry oxygen cylinders while going up a mountain to avoid suffocation.

**Q. 3. Why do we feel uncomfortable on humid days?**

Ans- High humidity makes us feel uncomfortable as our sweat does not evaporate easily.

**Q. 4. What is the composition of air?**

Ans- Multiple gases such as nitrogen, oxygen, carbon dioxide, argon, hydrogen, and ozone, get mixed together to form air. Air is composed of 78% Nitrogen and 21% Oxygen. Carbon dioxide, water vapour, argon, helium, dust particles, etc. make up the remaining 1% of the air. Their proportions may vary depending on the weather and the environmental conditions

**Q. 5. How can you show that air occupies space?**

Ans- Take a bucket of water, and an empty tumbler. Turn the tumbler upside down and push it into the water. Then, tilt the tumbler and put it into the water. When you try to push the tumbler upside down into the water, you will not be able to push it in because there is air in the tumbler that has no way of escaping. When you tilt the tumbler, you see air bubbles escaping from the tumbler and the water starts filling the tumbler

**V. Long answers questions.**

**Q.1. What is soluble impurities? How do we remove soluble impurities from water by distillation?**

Ans- 1. Soluble impurities are impurities which can dissolve in water. They can be removed by the process of distillation.

2. To remove soluble impurities from water, we use the method of evaporation and condensation, which is together called distillation.

3. First, the mixture is heated in a flask, which causes the water to evaporate. Next, the water vapour passes through a condenser and cools down to liquid water. The purest water is obtained using the process of distillation. Distilled water is used in laboratories and chemical batteries.

**Q.2. Differentiate between sedimentation and decantation.**

Ans- The process of settling down of heavier insoluble particles from a mixture is called sedimentation.

The process of transferring the clear liquid without disturbing the sediments is called decantation.

**Q.3. Write about the different layers of atmosphere.**

Ans- The atmosphere consists of the five layers:

• **Troposphere**: The first layer above the Earth is the troposphere. Weather changes happen in this layer.

• **Stratosphere**: This is the second layer. Many jet aircrafts fly in this layer. Ozone gas that absorbs harmful ultraviolet rays from the Sun is present in this layer.

• **Mesosphere**: this is the third layer. This layer protects the Earth from meteorites or small rocks moving about in space.

• **Thermosphere**: This is the fourth layer. The only thing from the Earth that has entered this space is the space shuttle. This layer has temperatures as high as 2000°C.

• **Exosphere:** This is the fifth and the outermost layer of the atmosphere. Space starts after this layer

**Q.4. Explain different ways in which drinking water can be cleaned.**

**Ans-** The purification of water can be carried out in the following ways:

- Water can be purified using potassium permanganate or alum.
- We can also make use of ultraviolet water filters. So that the filter itself does not become contaminated, we must clean it frequently.
- To make water safe for drinking, it can be boiled for 10-15 minutes. On a large scale, sedimentation, filtration and distillation are carried out in towns and cities

**HOTS:-**

**Q-1. There is a gas called laughing gas. Find out, which gas is it, and what are its effects?**

**Ans-** Nitrous Oxide is popularly known as laughing gas.

Varying on the amount of gas inhaled, the effects of the gas are:

- Feelings of euphoria, relaxation and calmness
- Dizziness, difficulty in thinking straight and fits of giggles or laughter

**Q-2. What would happen if the concentration of carbon dioxide increases in the atmosphere?**

**Ans-** Rising levels of carbon dioxide in the atmosphere will lead to increase in the Earth's temperature. The planet will become warmer and the water in the oceans will turn more acidic putting marine life in danger.

**Post-activity-** Draw a diagram of distillation.

Subject Teacher

H.O.D.

Coordinator

Principal