



## ACTIVITY SHEET

November 2008

### Why talk about Aerosols?



Aerosols are collection of tiny particles of solid or liquid suspended in a gas. The most familiar form of an aerosol is in the pressurized spray can, like bottles of deodorant or mosquito spray. Aerosols contain particles called chlorofluorocarbons (CFCs), which damage the stratospheric ozone layer. These CFCs are also emitted from Air conditioners, refrigerators, and any cooling devices.

The scientists are worried about stratospheric ozone layer because it contains a Ozone (triatomic oxygen) that filters out much of the sun's harmful ultraviolet radiation. CFCs coming from aerosols are leading to the thinning and depletion of the ozone layer.

Name.....

School Name .....

Class..... Date.....

**Gobar Gyan:** We have all heard about how every day, human inventions like cars and factories are creating a large amount of pollution, and leading to the degradation of our environment. A part of this pollution is caused by one of our most used inventions: 'a can of spray'.

**Activity:** How many times a have you sprayed down that line of ants on the floor, or used deodorants before leaving for your friend's birthday party? It is so convenient to use spray cans, is it not? Track down the items listed below in your house and write in the space alongside how many of each item do you have?

- 1. Deodorants -----
- 2. Paint and Varnish remover -----
- 3. Glass cleaning liquid spray -----
- 4. Paint -----
- 5. Mosquito spray -----
- 6. Hair spray -----

All the above items contain aerosols. These aerosols, though not even visible to the human eye, are causing a huge damage to the atmosphere around the Earth. When an aerosol particle comes in contact with the ozone layer, it can break down tens of thousands of ozone molecules before it is removed from the stratosphere.



*Hi! I am Pandit Gobar Ganesh. You will find me in Gobar Times—a magazine that tells you how your everyday life is linked to the world around you. Hooked, huh? If you want to know more about me and Gobartimes visit us at:*

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## OZONE LAYER:

The atmosphere is a layer of gases that is wrapped around the earth like a blanket. It is made up of the following layers:

■ Troposphere ■ Stratosphere ■ Mesosphere ■ Thermosphere ■ Exosphere

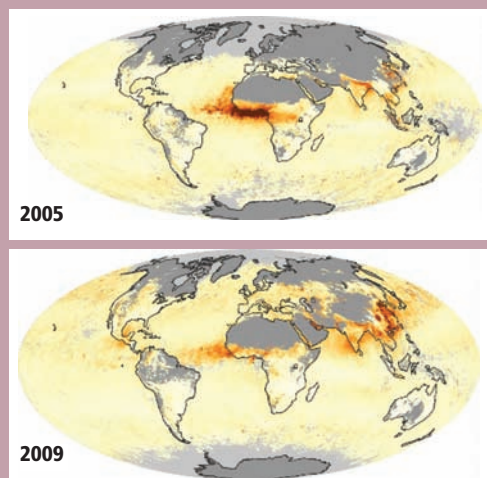
The ozone layer forms a part of the Stratosphere which contains relatively high concentrations of ozone (O<sub>3</sub>). This layer absorbs 93-99% of the sun's high frequency ultraviolet light, which is potentially damaging to life on earth. In recent years, CFCs emitted from various human activities is leading to the thinning of the ozone. In fact, at places over the South pole, holes have formed in the ozone!

**Aerosols:** These maps show average monthly aerosol amounts around the world based on observations from the Moderate Resolution Imaging Spectroradiometer (MODIS) on NASA's Terra satellite.

Elevated aerosol amounts nestle at the foothills of the Himalaya Mountains in northern India in some months, and linger over eastern China for much of the year. These elevated aerosol amounts are due to human-produced air pollution.

**Source:**

[http://earthobservatory.nasa.gov/GlobalMaps/view.php?d1=MODAL2\\_M\\_AER\\_OD#](http://earthobservatory.nasa.gov/GlobalMaps/view.php?d1=MODAL2_M_AER_OD#)



**Gobar Gyan :** Apart from the damage that they cause to the environment, aerosols are also harmful to human beings. Although they do not hurt our skin, these chemicals, if inhaled, can cause illnesses such as asthma and diarrhea. Exposure over a long period of time can also lead to problems like headaches, nausea, shortness of breath, eye, throat and lung irritation, skin rashes, burns and even liver damage.

**Activity:** Talk to people in your house and neighbourhood who use spray cans to control pests and freshen the air. If possible talk to a painter in a nearby furniture shop. Ask them the following questions:

***Do they use canned sprays for their work?***

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***If yes, then for how long have they been working with these materials?***

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***Have they suffered from any unusual illness over the course of this time?***

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You may find that most people who use aerosol based sprays suffer from many problems, especially those of the lungs, skin and liver.

Gobar Gyan: In 1974 it was discovered that CFCs harm the stratosphere, companies started coming up with products that were CFC free. Today, many such options are available for us to use. When shopping for household cleaners and polishes, hair sprays, and insect repellents, ask your parents to look for products sold as pump sprays, not aerosols. Buy refrigerators and air conditioners that do not use CFCs.

**Activity:** Now that you have tracked down all the aerosol based sprays in your house, make a conscious choice and buy CFC free products for your home. In the space provided below list how many aerosol products you could replace with aerosol free ones.

**Aerosol products you used**

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**Aerosol free product you replaced it with**

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Now that you have found all the aerosols in the house, here are some precautions that can be taken when using these items. These help keep us safe from their bad effects:

- Always use aerosols in a well-ventilated area and do not inhale the vapors.
- Avoid misdirected sprays; it can harm the eyes and skin.
- Keep aerosol cans away from heat and flame.
- Dispose of the cans in your regular trash. Even though many of them are now made of recyclable materials, recycling centers do not usually accept them because they may explode. Never disassemble, puncture, or incinerate an aerosol can.



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