

# Green Schools Network

GobarTimes

## ACTIVITY SHEET

April 2012

Why talk about

### Water Filters?



The inability to provide safe drinking water to communities features at the very top of our list of developmental failures, with the disastrous consequence of high mortality rates. In 1996, the World Health Organisation (WHO) stated that each year, more than five million human beings died from illnesses linked to unsafe drinking water. It is further estimated that, by 2020, 135 million people will die from water-related diseases unless they are not only provided adequate water but access to clean drinking water.

Name.....

School Name .....

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

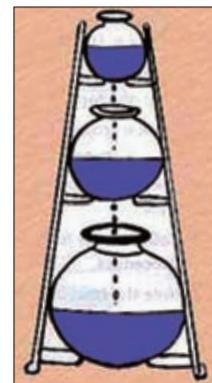
#### Gobar Gyan

With water serving as a resource that defines human, social and economic development, the water crisis today is inextricably linked to factors like population growth, pollution and over-exploitation of water resources. Industrialisation and the pressure of agricultural productivity have played a major role here, generating large quantities of waste. However, to a great extent population growth has also been a reason for the decline in the per capita availability of fresh water, with individual practices significantly determining the quality of water.



A world water development report of the United Nations has categorised India among the countries ranking highest for poor quality of water, as well as the inability and lack of commitment to improve the situation. The Asian rivers are the most polluted in the world, with three times as many bacteria from human waste as the global average. These rivers also have 20 times more lead than those of industrialised countries, says the report

Early Sanskrit writings outlined a range of methods for purifying water, from boiling or placing hot metal instruments in water to filtering water through crude sand or charcoal filters (Baker & Taras, 1981). The writings suggest that the major incentive to purify water was to get drinking water to taste better, assuming that water that passed the taste-test was also clean.



#### Activity 1

The history of water filters is indelibly tied to the history of water itself. Can the basic filtration methods from ancient texts and practices still produce the best drinking water? Or, do we need more intense purification methods to combat the modern contaminants in our water supply?



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List a few traditional as well as modern methods of water purification at the household level. Also find out the advantages of each purification method.

Traditional Methods	Advantages	Modern Methods	Advantages

**Observations:**

1. Were there more diverse household purification methods then or now?

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**Few popular technical purification methods**

Water Filters	Ultraviolet Sterilizers
Water Softeners	Reverse Osmosis Systems
Water Distillers	Activated Carbon Systems
Iron Removal Filters	Mineral Tanks & Accessories

2. Do you think that an increase in contaminants now requires more scientific methods for water purification?

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**Gobar Gyan**

Today people are understandably concerned about the safety of their drinking water. We cannot expect pure water in a world full of contamination but what we can ask for is "safe water".

Are you wondering what is in your drinking water? For an accurate answer, you will have to get it tested in a laboratory.

Contamination also depends on the sources of water. If you think that you are safe as you ingest groundwater then you are not aware of possible threats. Drinking water can be contaminated at any stage – at the original water source, while treating, or even while it is distributed through pipes to your home.

There are primarily four types of contaminants

- a. Microbiological – Disease-producing micro-organisms known as pathogens get into drinking water when the water source is contaminated by sewage and animal waste.
- b. Organics – Organic contaminants include pesticides, herbicides, decayed plant and animal tissues, gasoline, etc. They may be removed by using a combination of filtering methods.
- c. In-organics – These can get into your drinking water from natural sources, industrial processes, and the materials used in your plumbing system. They can cause acute poisoning, cancer and other serious health disorders.
- d. Radioactive Elements

**Activity 2**

The threat of harmful contaminants in our drinking water cannot be ignored, especially given the relation between contaminated drinking water and health problems. Are you concerned about the purity and safety of your drinking water? Are you thinking about the different water treatment methods you can buy? Are you wondering which drinking water treatment method will ensure that you are drinking safe water? There are many home treatment alternatives that can help you purify drinking water. The best technology now available for treating water and removing contaminants is water filtration. Water filters provide safer, healthier drinking water. But wait! Don't you want to know their efficiency before making huge investments? Let's explore their claims. Are they really as efficient as they claim?



The table below has three major columns

- Column 1 – List down three companies/brands of water filters available in your city.
- Column 2 – Refer to the technical system they are using for water purification.
- Column 3, 4 & 5 – Three types of contaminants are listed below. Mention the extent to which water filters remove the mentioned contaminants. (M – Mostly removed S – Some removal N – None removal)

Go through their brochure or observe their advertisement on television about their efficiency in removing contaminants

Brands/Company	Popular Techniques they use	Microbiological (Iron, Bacteria, E.Coli, Giardia)	Organic (Pesticides, herbicides, VOCs)	In-organic (Calcium, Magnesium, Arsenic, Asbestos, Chlorine)

### Gobar Gyan

The bottled water market in India is booming like any other country. A study conducted by the Centre for Science and Environment (2003) says that most of the brands of packaged/mineral water available in the country contain pesticides – several of them banned – significantly higher than permissible limits, which can cause serious physical impairment ranging from damage to the central nervous system to lung cancer.

- Bisleri, the market leader, ranks 15th amongst 17 water brands studied in Delhi with the total pesticide content being 79 times more than the prescribed limits and seventh amongst 13 brands studied in Mumbai.
- Coca-Cola's Kinley has been ranked 8th in Delhi with 14.6 times more than prescribed limits of pesticides, while it is on the 5th spot in the Mumbai list.
- In Delhi, most companies depend on bore well water and are located in industrial or agricultural areas which are the reason behind increased pesticide content. In Mumbai, however, the companies use water supplied by the municipal corporation.

### Activity 3

Let's take a survey. This survey should aim at finding the expenses incurred on bottled water and possible options to replace bottled water.

1. Do you or your family use bottled water (daily, weekly, once a month)?  YES  NO
2. What type of water is safe according to you?
  - a. bottled water
  - b. water from the tap
3. People drink bottled water because
  - a. tap water tastes bad
  - b. it's safer than tap water
  - c. convenience
  - d. fashion/ lifestyle
4. Do you think bottled water can be dangerous?  YES  NO
5. Are you aware about the quality of plastic used to make the container/bottle?  YES  NO
6. If you are asked to replace bottled water with an option, what will it be
  - a. Tap water
  - b. Filtered tap water
  - c. Boiled tap water
  - d. other, please share what and why



Water is a vital part of both our environment and our body systems. Indeed, water intake is crucial to our survival. So far, the winning technology available for treating water and removing undesirable contaminants is water filtration. Being informed about water contaminants and their dangerous health consequences will allow you to actively protect yourself and your family. It is vital to know your drinking water and how you can be safe from contaminants by selecting the best water filters. At the same time, water filtration and treatment will arguably continue to evolve in the future.



If you found the activity sheet interesting, E-mail us at [eeu@cseindia.org](mailto:eeu@cseindia.org) or write to:  
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