Garbage In, Garbage Out

Components of Garbage

All of us have eaten some form of packaged food such as chips etc. and have thrown away the packet as waste. A lot of waste is generated in homes during the processes of cleaning and cooking. While studying too, we may end up throwing some waste paper into the bin. Even a simple activity like the sharpening of a pencil generates wood wastes.

Think of all the activities that are performed during the course of a single day and you will see that most of these activities generate some form of waste or the other.

The waste products generated from our day-to-day activities is collectively called garbage.

Can we name of few things that form garbage?

Plastic bags, packaging tins, groundnut shells, tickets used in buses, trains, movies etc., broken toys, old clothes and shoes, vegetable peels ,egg shells, tea leaves, newspaper pieces, dry leaves, paper bags, broken glasses, aluminium wrappers, nails etc., are all wastes that are generated in our day-to-day lives.

Did you know that in India, 42.0 million tons of solid wastes is annually generated at present?

We see that many different types of materials are generated as wastes. What are their characteristics? Is there any method by which they can be separated?

Let us perform an activity to find out if all the wastes that are generated have similar characteristics.

Garbage that was randomly collected was put in a tank. After some time, it was observed for any changes that might have taken place. A table was created to record the results.

It was observed that some of the materials had changed and some did not. That is, some of the materials

- changed a little and smelled rotten
- changed completely and did not smell rotten
- showed no change and did not smell rotten

Garbage Components	Observation
Vegetable peels	Changed
Egg shells	Changed
Plastic sheets	No change
Broken toys	No change
Old shoes	Partially changed
Aluminium cans	No change
News papers	Changed
Dry leaves	Changed

Metal pieces	No change

We often see that dry leaves that are collected are burnt. This produces smoke that is harmful to the environment. Instead, dry leaves should be mixed with soil as a source of nutrition and not be burnt.

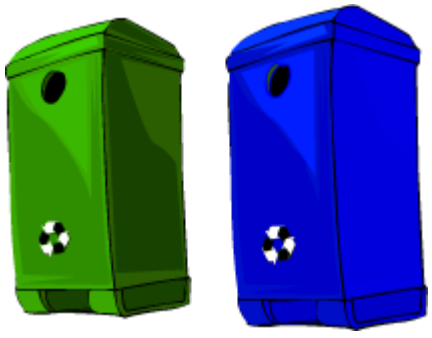
On a closer look, we observe that wastes generated from plants and animals changed. Vegetable peels and dry leaves are plant produces. News paper too is produced from the pulp of plants. Egg shells are animal products.

When all these materials are mixed with the soil they provide nutrition to the plants. They are used as manure. Therefore, they are useful or beneficial to the environment.

The materials such as plastics and metals that are not obtained from plants and animals do not change/degrade even over many years. They accumulate in the environment and are harmful to the environment. Therefore, the generation of such wastes should be reduced.

Metal scraps, aluminium wastes, plastic toys etc can be recycled to make new things. These garbage components are called recyclable materials.

Did you know that based on this principle, waste materials are collected separately so that they can be treated appropriately? Different coloured dustbins represent the types of materials that they cater to.



Green-coloured dustbins are meant for garbage materials that are generated from kitchens, plants and animals. These materials decompose and therefore, can

be easily mixed with soils, thereby increasing the fertility of the soil. The blue-coloured dustbins contain materials that remain in the environment and therefore need to be recycled.

Have you ever wondered what happens to all the garbage that is generated? These are collected by *Safai karmacharis* who dump them into larger dumps. Garbage vans carry the garbage to areas on the outskirts of the city and dump them. Such regions are called **landfills**.

After a landfill is filled with garbage it is covered with soil and converted into a playground or park. For about 20 years no construction activity is carried out on it.

Recycled products can be identified by the symbol illustrated. On your next visit to the market ,check if the packet contains this symbol.

Vermicomposting

Compost is a rich source of nutrients for plants. **Did you know that it is easy to make compost?**

We know that waste materials that are obtained from plants and animals, when mixed with soil is converted into a useful substance called manure or compost. Compost is a rich source of nutrients for the plants.

Vermicomposting is a method of preparing compost during which earthworms are mixed with soil in a pit, along with waste materials that are obtained from plants and animals.

Things to do during composting:

- The soil should be moist and wet (but not too wet).
- Waste materials should be from plant and animal sources only, i.e. they should be organic.
- The contents in the pit should be mixed frequently in order to provide sufficient air and moisture.
- Composting can be carried out in a wooden box, barrel, tank, etc., depending on the quantity of compost and availability of space.
- Composting should be done in the shade.

- After the earthworms are introduced into the pit, the composting material should be covered to provide protection from sunlight, heavy rains, and animals. Gunny bags, newspapers, cloth or a layer of grass can be used for this purpose.

Things not to do during composting:

- Excess water should not be sprinkled.
- Composting region should not be under direct sunlight.
- Waste containing salt, pickles, oil, milk preparations, vinegar, meat etc are not to be used during composting.

After three to four weeks, the soil turns dark, moist, and loose. This is compost and is now ready to be used.

More about Earthworms

Eating habits: Earthworms or red worms do not have any teeth. They grind their food with the help of a special structure called a **gizzard**. When powdered egg shells or sea shells are added to the composting mixture, it helps in the process of grinding of food by the gizzard.

Living habits: Earthworms cannot survive in very cold or very hot temperatures. Therefore, the compost is not prepared in direct sunlight and too much water is not used.

Importance of vermicomposting:

- It can be a source of income.
- It helps in the management of garbage.
- It prevents the environment from getting polluted by waste materials.
- It gives us a good quality usable manure from waste materials.
- It helps us in saving the money that we would otherwise spend on chemical fertilizers.

- It gives us a manure that does not have any side effects on the soil and the environment.
- It helps us to grow healthy crops in the gardens.

Usefulness to the community

Vermicomposting can generate useful materials and also help in getting rid of the waste materials generated in the community. It can be organized as a group activity, wherein the residents of a locality dump their organic wastes at a designated area in a selected community park. This compost can be used for the plants and trees that are planted in the locality.

Wastes: Are They Useful or Harmful?

A short story

Rajat and Sanjay are friends.

Sanjay is a very naughty child. He always made paper-planes using paper from his note books. A lot of waste paper was always found around him. He did not care to keep his surroundings clean and often threw things around.

Rajat is very fond of creating things out of waste materials. Some of the things that he has created using waste materials are files from old charts, greeting cards using dried flowers, flowers created from pencil shavings, floor mats using old clothes, baskets and pen-stands from old poly bags etc.

You can see that Sanjay and Rajat are very different in their interests! Who would you like to be?

We know now, that managing waste is a complex issue and therefore we should try and avoid generating unnecessary wastes. Rajat used old materials to create new and useful things. This also helped to reduce the wastes. On the other hand, Sanjay's ways increased the wastes.

We need to understand that wastes are harmful, therefore, finding methods to reduce waste generation and reusing the wastes is in the interest of the environment.

Let us explore and learn

How do we reduce waste generation?

Actions	**Waste generated**	**Methods to minimize wastes generated**
Shopping	Packaged cartons, Plastic bags	Carrying our own bags for shopping would reduce the usage of plastics.
Cleaning	Tissue paper	Using handkerchiefs would reduce the use of paper
Using plastic-coated paper to cover books	Plastic wastes	Using normal paper to reduce the generation of plastic wastes

Can you think of more activities that generate wastes?

You will observe that plastic and paper are common wastes generated everyday.

Let us understand the methods that can be adopted to reduce paper and plastic wastes

Each day we see that a lot of paper is used. Did you know that you too can recycle paper and reduce paper wastes?

Recycling is the reprocessing of used or wasted materials, to make new and usable things out of those waste materials.

Tear old newspapers into small pieces and soak in water for a day. Mix well to make a thick paste. Spread the paste over a framed wire mesh in a uniform layer. Wait for the water to drain out. Extra newspaper or cloth can also be used to

soak the water. Carefully remove the layer from the mesh and spread to dry in the Sun. Paperweights can be placed to avoid curling up while drying.

Dried flowers can be used to decorate. Turmeric or other vegetable colours may also be used.

Greeting cards, photo frames, papier-mâchè objects, cardboards, etc are a few materials that are prepared by recycling paper.

Papier-mâchè is a material prepared by soaking old paper. It can be molded into different objects. Can you think of making some things from this material?

Did you know that using both sides of the paper rather than a single side will reduce the utilization of paper by half?

Reducing plastic wastes

Plastic is a very useful substance which we commonly use. Various types of substances are made of plastic. Some of the items made of plastic are toys, shoes, bags, pens, combs, tooth brushes, buckets, bottles, water pipes etc. Parts of radio and television sets, refrigerators, and automobiles such as buses, cars, and scooters are made of plastics.

What happens when plastic materials become old? You may have thrown away the wrappers of chocolates and toys. What do you think happens to them?

Did you know that?

- Plastics can choke up the sewage system, resulting in the overflowing of drains.
- Street animals may consume this plastic while trying to eat the eatable things that are wrapped in plastic bags. Doing so may even result in their deaths.
- Plastics do not decompose easily and remain in the environment, thereby causing pollution.
- Plastic bags used by the shop keepers release poisonous substances; when food is wrapped in such bags, it may cause many health problems.
- On being burnt, plastics release polluting gases that cause respiratory problems.
- Knowing that plastics cause a lot of environmental and health related problems, the Government of India has laid down certain rules governing the use of plastic bags and the recycling of plastic products.

Methods to reduce the wastes generated from plastic:

- Reusing shopping bags.
- Proper disposal of plastic wastes rather than burning them.
- Using paper bags instead of plastic bags for shopping, storage etc.

Thus, we understand that wastes are harmful. We therefore, need to follow the various methods in order to reduce the generation of wastes, and propagate the recycling of paper and plastic. This would benefit the environment and make it a more beautiful place for all to live.