

NCERT SOLUTIONS

CLASS-VI SCIENCE

CHAPTER-16

GARBAGE IN GARBAGE OUT

QUESTION 1

A-Which type of garbage do red worms cannot transform into compost?

B-Which are the organisms other than red worms help in composting?

SOLUTION;

A- Plastic bags, broken glass, aluminium wrappers and plastic items are the types of garbage which cannot be converted into compost by red worms.

B- Bacteria and saprophytic organisms like moulds help in composting.

QUESTION 2

A- Should the government be the only one held responsible for garbage disposal?

B-How can the problems arising from garbage disposal be reduced?

SOLUTION;

A- It is the duty of every citizen in the country to help in proper disposal of garbage apart from the government and municipal. It is in our hands to dispose the garbage in a proper manner so as to make garbage collectors' job easier.

B-By adopting the following measures, problems related to garbage disposal can be reduced:

1. a) Garbage should be disposed only at appropriate places and not everywhere like parks, roads and streets.
2. b) Reusable garbage should be separated before final disposal of the garbage so as to reduce the volume of garbage.
3. c) By following the principle of 3R's

Reduce: Reducing the amount of waste we generate by using minimum amount of resources to fulfill our requirements.

Reuse: Making use of reusable things again and again until they become obsolete instead of disposing them.

Recycle: Recyclable garbage can be sent for recycling for their next use as a different material instead of disposing them.

QUESTION 3

A- How do you dispose the left-over food in your home?

B- If you are asked to opt between a plastic plate and a banana leaf to eat on, at a party, which one would you prefer? Why?

SOLUTION;

A Left over food at home can be dumped into a compost pit and converted into manure which can be used instead of fertilizer.

B- I'll prefer banana leaf platter because it can be easily decomposed whereas plastic take years to decompose and pose a threat to our environment.

QUESTION 4

Collect and look at pieces of various kinds of paper. Find out whether all these kinds of can be recycled. Can you spot any difference between a recycled paper and a new sheet of paper?

SOLUTION;

Pieces from almost all kinds of sources like notebooks, newspapers and magazines can be recycled. Shiny and plastic coated papers cannot be recycled easily.

The surface of a new sheet of paper is smooth whereas the surface of a recycled paper is rough.

QUESTION 5

A- What are the different kinds of packaging material used and what are their purposes?

B- Cite an example where packaging could have been reduced?

C- Describe how packaging increases the amount of garbage produced.

SOLUTION;

A- Different kinds of packaging material include thermocol, foam sheets, cardboard , paper cuttings and jute.

B- Unnecessary packaging of shoes, toys, chocolate and clothes can be avoided.

C- We sometimes use shiny coloured plastic wrappers for gift wrapping so as to make it attractive. After use, they are disposed and don't serve any other purpose.

Similarly, many day-to-day-use items like ghee, detergents, soaps and refined oil are sold in small packets.

They contribute to a significant percentage of garbage.

QUESTION 6

Why do you think compost is better than fertilizers?

I- Compost is eco-friendly and doesn't harm the environment. Fertility and texture of the soil is maintained while using compost.

II-The natural composition of the soil is affected while using fertilizers and some of them are even toxic in nature at higher quantities.

III-Compost is easy to make and cheap whereas fertilizers are costly and also harmful.

QUESTION 7

Choose the correct answer:

Landfill is a

I- High lying open area

II- Low lying open area

III-Open area

IV- Open area near a river

SOLUTION; Low lying open area

QUESTION 8

The garbage is said to be completely rotten when

I-The rotting is complete without any smell

II-The rotting is almost complete but smells bad

III- It has only partially rotten

IV-There's no change at all

SOLUTION; The rotting is complete without any smell

QUESTION 9

Which of the following items are suitable for making compost?

1- Egg shells, vegetable and fruit peels and tea leaves

2- Aluminium wrappers, plastic bags and dry leaves

3- Broken plastic toys, polythene bags, pieces of clothes

4- Plastic paper, tin foil, wrappers

SOLUTION; Egg shells, vegetable and fruit peels and tea leaves

QUESTION 10

Which of the following organisms are not suitable for compost?

1- Bacteria

2-Moulds

3- Red worms

4- Mosquitoes

SOLUTION -Mosquitoes

QUESTION 11

Where should the leaves falling from a tree be disposed?

1- landfill

2- compost pits

3-dried & burnt

4- dumped in water bodies

SOLUTION ;compost pits

VERY SHORT ANSWER TYPE QUESTIONS

1- What is a compost pit?

SOLUTION; A compost pit is one where the compostable wastes are dumped in layers for a specific period of time along with micro- organisms like red worms which decompose the wastes to form humus.

2- What are brown coloured bins used for?

SOLUTION; Brown coloured bins are used for kitchen and garden waste.

3- What are green or grey coloured bins used for?

SOLUTION; Green or grey coloured bins are used for non- recyclable wastes.

4- Mention some examples of reusable materials.

SOLUTION; Glass, Metals and plastics are reusable in nature.

5- Define vermicomposting.

SOLUTION; The process of composting where red worms are used to decompose the waste is called vermicomposting.

6- What is composting?

SOLUTION; The process of decomposing organic waste using micro-organisms under anaerobic conditions to form humus is called composting. The humus can be used as manure.

SHORT TYPE ANSWER QUESTIONS:

1-Why is it that materials like salts, oil, pickle, vinegar, meat and milk products shouldn't be added to the composting pit?

SOLUTION; The above mentioned materials should not be added to the composting pit because they encourage breeding of small disease causing organisms. They may harm the red worms and hinder the process of vermicomposting.

2-How are the non-degradable components of garbage disposed?

SOLUTION; Initially, the non-degradable components of the garbage is separated. It is then spread over a landfill and covered with multiple layers of soil. Once the landfill is full and cannot take any more waste, it is converted into a playground or a park. For a specific number of years, no building is constructed in the vicinity of the landfill.

3-How are the bio degradable components of a garbage disposed?

SOLUTION; The bio-degradable components of a garbage are used to make humus through a process called composting. In this process, the garbage is laid in the pit in alternate layers with soil. It is left in the same state for 20-25 days for the anaerobic decomposition of garbage to take place. After 20-25 days, if the garbage has completely turned black and there is no foul smell, the process is complete.

4-Define composting.

SOLUTION; The process of decomposing organic waste using micro-organisms under anaerobic conditions to form humus is called composting. In this process, the garbage is laid in the pit in alternate layers with soil. It is left in the same state for 20-25 days for the anaerobic decomposition of garbage to take place. After 20-25 days, if the garbage has completely turned black and there is no foul smell, the process is complete. The black substance formed is called humus. The humus can be used as manure.

5-Why should wastes like dry leaves and husk be not burnt as it is? What is the best way of disposal for this kind of wastes?

SOLUTION; Burning of these kind of wastes produces smoke which pollutes the air and are harmful to living beings. Instead, they can be composted to form humus.

6-Mention some waste products discharged from industries.

SOLUTION;

A-Plastic bags

B-Smoke

C-Broken metals

D-Empty bottles, containers

E Ash

F-Harmful chemicals

7-What happens when a garbage container which is full is left in the open?

SOLUTION;

- a- Garbage starts rotting and as a result of this, foul smell starts emanating from it.
- b- It will become a breeding ground for mosquitoes and flies which are vectors of communicable diseases.
- c- It may also cause air pollution and also cause respiratory problems.
- d- It destroys the aesthetic look of a place.

8-Mention the composition of garbage.

SOLUTION;

a. Food items

- b- Fruits and vegetable peels
- c- Used bottles, containers
- d- Used bandages
- e- Used syringes and cotton
- f -Empty paper boxes
- g- Polythene bags
- h- Broken glass and metal pieces

9-Define papier-mâché. How does this help in reducing the problems related to garbage?

SOLUTION; Papier-mâché is a malleable paste/mixture of pulp from recycled papers and clay. They are used to make boxes, ornaments and trays.

10-With which material can the following packaging material be replaced with?

- a- Polythene bags for dry eatables
- b- Polythene milk packets
- c- Shiny wrappers for gifts
- d- Thermocol box for glass items.

SOLUTION;

- a- paper bags with a thin aluminium lining or recycled polythene
- b- recycled polythene or glass bottles
- c- Designed paper wrappers or recycled shiny wrappers
- d- thermocol can be replaced with straws

LONG ANSWER TYPE QUESTIONS:

1-What are the various bio-degradable and non-bio-degradable wastes that you can find in your school? Mention the most suitable ways to get rid of these wastes.

SOLUTION;

Non-bio-degradable wastes:

- a- Toffee wrappers
- b- Aluminium foil
- c- Plastic geometrical instruments
- d- Broken iron wire pieces
- e- Glass wares
- f Discarded plastic and polythene containers

Bio-degradable wastes:

- a- Pencil scraps
- b- Chalk boxes
- c- Fruit peels and food wastes
- d- Waste and torn paper pieces
- e- Leaves and twigs
- f Human waste
- g- Paper containers

Methods of disposal:

All the bio-degradable wastes can be collected and dumped in a pit in a corner inside the school compound. The pit should then be covered with soil and watered and when the pit is full, a mixture of dung and clay is laid as an outer cover. After a few weeks, the waste is completely decomposed and converted into manure.

The non-bio-degradable wastes are either sold off or dumped in a landfill.

A-Mention some uses of plastic.

- i-They are water proof
- ii- Can be easily transported
- iii- They're cheap, light weight and durable
- iv- They are used to store chemicals without affecting the chemicals which is stored
- v- They can be recycled

B-Mention some demerits of plastic.

- i-They are often used to fill garbage in them and are thrown away in the open. It proves fatal for the stray animals which consume this.
- ii- Plastic bags thrown carelessly end up in the drains and finally choking them.
- iii- They give out harmful gases on heating or burning which causes respiratory problems and also result in air pollution.

2-What would you suggest to the members of a locality to solve problems associated with waste disposal?

SOLUTION;

- i-Create awareness on the need of segregating the wastes into degradable and non-degradable wastes
- ii-Educate them on the various methods of disposal available for degradable and non-degradable wastes
- iii-Show them on the importance of shedding plastic items and using suitable alternatives

Convince the RWA(Resident Welfare Associations) to compost the degradable waste and use the obtained humus from compost as manure for plant pots in parks.

3-Why is it ill-advised to use plastic bags to store cooked food items?

SOLUTION; Plastic bags, when used to store cooked food items can be harmful to our health. When they are disposed after use, they are sometimes collected by rag pickers and are sent for reuse after washing them. Therefore, use of plastic bags for food items have to be kept to a minimum.

4-Mention the steps involved in the process of vermi-composting.

SOLUTION;

i-A pit, about 30cm deep is dug

ii- A chicken mesh or net is spread at the bottom of the pit. A layer of sand of about 2-3 cm is laid on the mesh.

iii -A layer or two of fruit peels and vegetable wastes, newspaper waste and dry leaves is laid on the sand layer. A small amount of water is sprinkled on the waste layer.

iv- The layers are pressed so that it has sufficient air and moisture.

v-Now, red worms are introduced into the pit.

vi-The whole pit is covered with a gummy bag or an old sheet of cloth.

vii- Wastes containing oil, pickle, salt, meat and milk products should be avoided so as not to harm the red worms.

viii- After a few weeks, add some more food waste to encourage the growth of red worms.

ix- Remove the composted humus from the pit and dry it.

5-Describe any one method of recycling paper.

SOLUTION;

1-Collect old notebooks, newspapers, envelopes and other paper wastes.

2-Tear them into small pieces of identical sizes and drop them into a bucket containing water.

3-Keep the pieces submerged for two days.

4-After two days, make thick paste of the paper by pounding it. After this, spread the waste on the mesh fixed to a frame.

5-The layer should be uniform throughout.

6-Spread an old sheet of paper or cloth to absorb the excess water.

7-Remove the paste layer and dry it in the sun. make sure that the corners do not crawl up.

8-Add decorations using colour, if needed.

6-Suggest some methods to avoid overuse of plastic.

SOLUTION;

a- Avoid plastic bags to store eatables.

b- Stringent laws should be made so as to make the shopkeepers adopt jute bags instead of plastic covers.

c- Avoid filling plastic bags with garbage and throwing it away. Stray animals may end up consuming it which is fatal for them.

d- Avoid burning of plastic bags since it causes air pollution and also results in various respiratory problems.

e- Reuse plastic bags whenever possible to reduce the amount of non-degradable wastes.

7-There are two types of bins that are provided by the municipality- green coloured and blue coloured ones. Mention which of these two bins you will use for each of the following waste.

Fruits and vegetable wastes, twigs and dried leaves, plant and animal wastes, plastic wastes and metal and glass wastes.

SOLUTION;

Green bins: This bin is used to dispose degradable wastes namely **Fruits and vegetable wastes, twigs and dried leaves, plant and animal wastes.**

Blue bins: This bin is used to dispose non-degradable wastes namely **plastic wastes and metal and glass wastes.**

8-Mention any useful application for each of the following waste materials:

1-Drink cans

2-Shoe box

3-Plastic bottles

4-Powder container

SOLUTION;

1-Drink cans: Can be used for storing oil, growing herbaceous plants

2-Shoe box: Can be used a box for storing pencils and other small articles.

3-Plastic bottles: can be recycled or used for storing liquids like oil.

4-Powder container: they can be either recycled or used as a pencil stand or to grow herbaceous plants.

