

## **UNIT 8: HOW TO MANAGE HOUSEHOLD WASTE**

**Grade Level:** Upper Primary Level

### **Introduction:**

Getting rid of household waste is everyone's problem. Everyone throws away used papers, old newspapers, bottles, cans, plastic bags, kitchen wastes, such as fruit and vegetable peelings, residues from fish, meat and rice preparation, and left-over, excess or unfinished food. Given the amount of these household wastes, the problem of waste management thus arises.

### **Educational Objectives:**

This script includes the following learning objectives:

1. Deciding on the course of action to manage household waste.
2. Planning a community project on dealing with household waste.
3. Co-operating with members of a group.
4. Communicating orally and in writing.
5. Identifying household waste as either wet or dry and its interpretation.

### **Scientific Concepts:**

Household wastes, if not disposed properly, can cause diseases.

Household wastes are classified according to its biodegradability or nonbiodegradability; dry or wet.

Household wastes could be reduced, reused, or recycled.

**Previous knowledge assumed:**

- Classification of materials
- Simple properties of matter

**Teaching/Learning Materials needed:**

Paper and pencil

Poster papers and coloured pens

## **Student Guide**

### ***Scenario***

Imagine that you live in a rural community with 30 households. No regular garbage collection occurs because the local government council cannot afford it. As one moves around the community, it is easy to see flies swarming over food and the smell coming from the garbage piles in front of houses is awful. Dogs, rats, cats and scavengers scatter the garbage - most of which goes into canals and drains. Because of these, unfortunate or rather unhygienic circumstances, people, especially children, get sick. Worst of all, many more children will get sick during the rainy season. Getting rid of household wastes is obviously a problem. What can be done? The local government council decided to ask the local schools to see if they could help.

### ***Your Task***

1. In groups and by devising a suitable table,
  - a. list garbage (wastes) produced in each household
  - b. classify the types of waste, taking into consideration the properties of matters and the "Reduce, Reuse, and Recycle" method of waste disposal and
  - c. give the source(s) of each waste produced in the household.
  
2. Discuss in your group the following:
  - a. What are the different ways of disposing household wastes?
  - b. The possible reasons as to why the people throw the waste indiscriminately outside their houses, or in any place in the community.
  - c. Suggest ways in which such habits of rubbish throwing in b can be changed.

3. Report the results of your group discussion on Question 2 to the class.
4. With the information gleaned from various report presentations, a whole class discussion will ensue before deciding on a class consensus on the issue at hand.
5. Plan a specific community project on "how to get rid of household garbage".

## **Teacher's Guide**

The activity relates to:

- a) an awareness of household wastes and how this can be minimized
- b) the advantages of returning vegetable and other biodegradable wastes to the ground
- c) developing a sense of civic responsibility.

### ***Teaching Strategy***

1. After giving students time to read individually the scenario,
  - (i) students list and classify household wastes using an appropriate table; and
  - (ii) students brainstorm the ways to dispose of the wastes generated earlier.
2. To better appreciate the problem, students make a record of the waste produced in their household over 1 week. These wastes are classified, their sources identified and presented in any suitable form.
3. Based on the properties of matter and the concept of "Reduce, Reuse, and Recycle", the groups discuss the issue of how to address the waste management problem by suggesting socially acceptable methods of disposal, instead of throwing the wastes indiscriminately. This is an important part of the lesson and the teacher will need to go around the groups ensuring that all students are participating in the discussion and that the discussion is covering the expected dimensions. Where the discussion is too narrow, the teacher will need to interject and help raise suitable questions (not give answers) that stimulate wider and in-depth thought.

4. Each group reports back to the class the results of their discussion. The report should be concise and to the point, stressing the main focus. The teacher may need to guide students in this and also to ensure that the rest of the class pays attention so that the reports can be followed by a class discussion in which a class consensus is reached. This will be needed for the community project which follows wherein the whole class is expected to cooperate together.
5. Students go back to their groups to plan a project for follow-up community action. This will be a whole class activity and once the plans have been developed within the groups and shared with the rest of the class, the class can decide on the course of action to take, and which groups undertake which part. The teacher will need to stress the importance of evidence to support any claim. The teacher will also need to stress the need for visual methods of persuasion e.g. posters. The teacher will also need to emphasize partnerships and thus, guide the students to make use of the mass media and to discuss their plans with the local council.

### ***Follow-up***

Students organize community projects involving people-participation. Parents and other members of the community will be involved from the planning to the action phase of the community work, focusing on ways and means in which household wastes could be disposed of.

### ***Expected outcomes (to be suggested by students)***

- Collection of household wastes, sorting out into biodegradable and non-biodegradable.
- Able to suggest ways of disposal such as reducing, reusing and recycling, and placing biodegradable wastes in compost pits.

## Achieving the objectives

<b>Objective</b>	<b>This is achieved by</b>
1. Deciding how to manage household waste.	brainstorming session and the group discussion.
2. Planning a community project dealing with solving the household waste problem.	taking part in the development and the carrying out of the community project, as a group.
3. Cooperation within a group.	students working together in discussing the problem and in developing a plan for the community project.
4. Communicating orally and in written format.	students discussing in their groups and creating a written plan for solving the waste problem.
5. Identifying household waste as either wet or dry and its interpretation.	completing the table after discussions within the group.

### **Assessment:**

This unit makes judicious use of a student-centred learning approach where students, assigned to groups, brainstorm, list and classify household wastes. The tasks assigned require students to listen and talk, as well as read and write to further develop students' two-way communication skills. This section on assessment aims to check and diagnose the extent to which the learning objectives delineated earlier have been achieved as intended. Besides getting to know students' level of skills and understanding, such feedback is central to the improvement of subsequent conduct of this unit.

#### *Formative/Diagnostic Assessment Strategies:*

Move around the groups during students' discussion and observe 2 students, 1 each from the teacher-perceived good and weak student categories. [Note: It is imperative that the teacher should group the students heterogeneously in terms of ability i.e. with 1 high, 2 average and 1 low ability student per group]. Award grade A, B or C based on the following described criteria:

Able to give a Social Values grade (objective 1)

- A. Identifies poorly the issue at hand. Gross errors are made in identifying and differentiating various types of wastes. Poor presentation of waste disposal suggestions and unable to justify the course of action taken.
- B. Identifies the issue and formulates the problem statement, with minimum help from teacher. A wide differing wastes could be generated and classified accordingly to whether or not they are biodegradable. Presents the suggestions on waste disposal at ease, drawing from the discussion made.
- C. Identifies clearly the problems and issues. Formulates the pertinent problem statement. Differentiates between relevant and irrelevant data/information in a logical fashion with regard to biodegradable and non-biodegradable wastes.

Present suggestions as to how household wastes could be disposed of in an organized, effective, convincing and practical manner.

Able to give a Science Method grade (objective 2)

- A. Not able to put forward positive contribution towards a community action plan
- B. Able to develop a community action plan.
- C. Able to guide others to develop a community plan and to ensure that actions suggested are justifiable.

Able to give a Personal Skills grade (objective 3 and 4)

- A. Too shy to speak or hardly gives any responses during the brainstorming/discussion. Accepts the group's suggestions/views without any indication to seek further clarifications.  
Too out spoken, monopolizing the conversation/discussion without adding meaning nor giving opportunity for teammates to voice their opinions.
- B. Able to put forward one's own ideas confidently, justifying when need arises. Asks for clarification from teammates occasionally.
- C. Able to put forward one's own ideas confidently, intelligibly and convincingly. Listens actively while others talk, seeking clarifications when ideas are vague to him or acknowledging/augmenting/capitalizing on pertinent ideas of others.

**Able to give a Science Concepts grade (objective 5)**

- A. Shows sign of confusion or not being able to define what household wastes are. Makes more than three mistakes while categorizing the group-generated list of household wastes into the domains of biodegradable and non-biodegradable. Not being able to conceptualize the implications of indiscriminate waste disposal on human health and well-being.**
  
- B. Defines household wastes without elaborating and giving examples. Categorizes wastes into biodegradable and non-biodegradable from the lists generated and made not more than two mistakes.**
  
- C. Defines household wastes in own words, elaborating by giving examples. Expresses accurately the meanings of biodegradable and non-biodegradable from the group-generated list. Exhibits an understanding of the implications of unhygienic waste disposal on human health and well-being by verbalizing the many diseases that could inflict children.**