25SCHOOLS
FREE LEARNING NOTES FOR ZAMBIA

FORM 1 · TERM 1

Biology

Waste management

Lesson notes for learners · Competence-Based Curriculum

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Every day your school and your home produce waste: food leftovers, bottles, wrappers, metal and glass. If it is left lying around, it piles up in the environment. In this note you learn how to sort waste, find where it comes from, manage it and teach others to do the same.

AFTER THESE NOTES YOU SHOULD BE ABLE TO

- Sort waste into wet and dry waste and into categories such as metals, plastics, glass and left over foods
- Identify the sources of waste in a local area and the factors that cause waste to be produced
- Explain the benefits of living in a waste-free environment
- Describe ways of managing waste, including the three Rs, incineration and correct disposal
- Identify the challenges communities face that lead to waste piling up and suggest solutions

KEY WORDS

waste management	the collection, transportation, processing, recycling and disposal of waste materials to reduce their negative impact on the environment
waste audit	an activity in which learners collect waste from an area, record the types they find and group them
wet and dry waste	the two main groups into which collected waste is sorted
the three Rs	reduce, reuse and recycle, a way of managing waste so that less of it piles up
incineration	a way of dealing with waste that is managed together with correct disposal in designated places
waste-free zone	an area, such as a part of the school, where waste is kept from accumulating

1 Finding out what waste we produce

A waste audit is a practical way to learn about the waste around you. Learners work in groups of four or five. Wearing gloves and carrying trash bags, each group collects waste from a set area of the school or community.

The group then observes and records the types of waste it finds, for example plastic bottles, food wrappers, cigarette butts, glass and metal. The waste is grouped into two main groups, wet or dry waste, and the findings are written in a data table or chart and presented to the class.

Safety matters during this work. Gloves protect your hands, and a first aid kit should be at hand in case of injury.

Category	Examples
Plastics	Plastic bottles, food wrappers
Glass	Broken bottles and jars
Metals	Metal scraps
Left over foods	Food that was not eaten
Other	Cigarette butts

Figure 1. Examples of waste a group may find during a waste audit

2 Where waste comes from

Waste does not appear by itself. It comes from sources, and finding those sources helps us plan how to reduce it.

In waste source mapping, groups draw a map of their local area and label the places where waste comes from. They then discuss the factors that lead to waste being produced at each source and present their ideas to the class.

Knowing the sources is the first step. A group that has mapped its area can see where waste is produced most and where management is needed.

3 Benefits of a waste-free environment

Living in a waste-free environment brings real benefits. Learners discuss these benefits in groups and write them on manila paper. Two benefits are named in the module: reduced waste management costs and a cleaner living environment.

Learners can also practise this. A group can run a zero-waste challenge at school, using posters to raise awareness about reducing waste. They document their experience, the challenges they faced and the benefits they noticed. They can then extend the campaign to their homes.

This activity is meant to change attitudes and values, in learners and in the community.

4 Ways of managing waste

Waste management involves collection, transportation, processing, recycling and disposal of waste materials. All of these reduce the negative impact of waste on the environment.

At school level, learners collect waste from an area and separate it into categories: metals, plastics, glass and left over foods. They then make a plan for each category so that waste does not accumulate. The plan should include the three Rs, incineration and correct disposal of wastes in designated places. Learners then carry out their plan on the waste they collected.

Where the usual tools are not available, alternatives can be used. Gloves, hoes, shovels, wheelbarrows and pitchforks are examples of tools that help with this work.

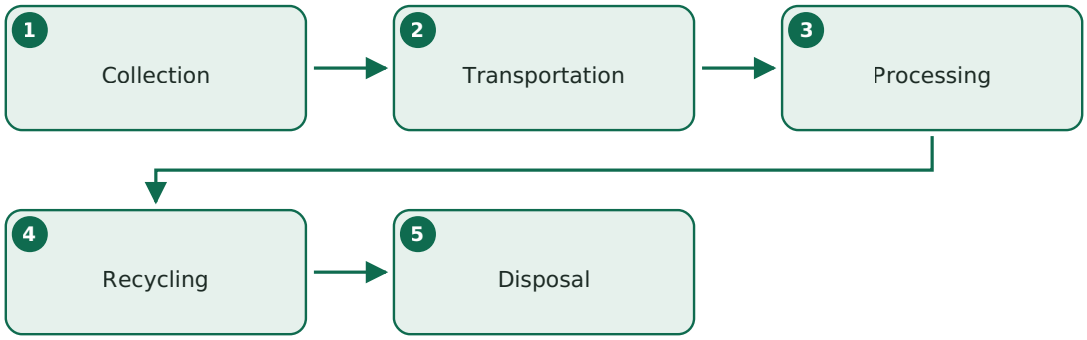


Figure 2. Stages of waste management

5 Challenges, waste-free zones and awareness

Communities face challenges that lead to waste piling up. Groups discuss the challenges in their own community, suggest possible solutions and record them in a worksheet with three columns: number, challenge and possible solution. They then present to the class.

A school can also create waste-free zones. Learners plan the zones and then create them in the school environment. A zone only helps if it is sustained, so the work must continue after it is set up.

Learners can also reach out to the community. They design posters about the impacts of waste and the importance of proper waste disposal, using the local language, and display them to the public. After discussing the challenges they met and the solutions, they repeat the campaign.

TRY THIS

In a group of four or five, collect waste from a set area of your school with gloves and bags. Sort it into metals, plastics, glass and left over foods, record it in a table, and write a short plan for each category using the three Rs, incineration and correct disposal. Present your plan to the class.

REMEMBER

- Waste management involves collection, transportation, processing, recycling and disposal of waste.
- A waste audit helps learners collect, group and record the waste around them as wet or dry waste.
- Mapping sources of waste shows where waste is produced and why.
- A waste-free environment lowers waste management costs and gives a cleaner living environment.
- A waste plan should include the three Rs, incineration and correct disposal in designated places.
- Waste-free zones must be sustained, and awareness campaigns in the local language reach the community.

? Check yourself

1. Name the five stages involved in waste management.
2. Name the two main groups into which waste is sorted in a waste audit.
3. Give two benefits of living in a waste-free environment.
4. What three things should a waste management plan include.
5. Why must a school waste-free zone be sustained.
6. A group of learners at a school near Feira collects waste from the school yard and finds plastic bottles, food wrappers, broken glass, metal scraps and left over food. (a) Sort the items into categories. (b) Say how the group should record its findings. (c) Name one safety item they should use.
7. A village near the main road has waste piling up beside the market. Learners are asked to help the community. (a) Name one activity that shows where the waste comes from. (b) Say how learners can raise awareness among the people. (c) Say why they should use the local language.

ANSWERS

1. Collection, transportation, processing, recycling and disposal.
2. Wet waste and dry waste.
3. Reduced waste management costs and a cleaner living environment.
4. The three Rs, incineration and correct disposal of wastes in designated places.
5. A zone only keeps waste from accumulating if the work continues after it is created.
6. (a) Plastics: bottles and wrappers. Glass: broken glass. Metals: scraps. Left over foods: food. (b) In a data table or chart. (c) Gloves, with a first aid kit nearby.
7. (a) Waste source mapping, drawing a map and labelling sources of waste. (b) By designing posters about the impacts of waste and proper disposal and displaying them to the public. (c) So that the people in the community understand the message.

Written by 25Schools to follow the Form 1 Biology syllabus of the Zambian competence-based curriculum. Free for learners to read, download and share. More notes and quizzes at 25schools.com.