



CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

The School's Recycling Booklet



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WHY WASTE IS SUCH A PROBLEM

It is an alarming fact that the amount of waste we generate in Cape Town is growing faster than our city's population. You have probably heard about carbon emissions, the depletion of the ozone layer, climate change and the problem of sustainability. All of these issues relate to global warming and the very real crisis that is currently facing planet earth.

What is global warming?

Carbon dioxide and other gases keep the earth's surface warm by trapping heat from the sun inside the atmosphere. This heat is necessary in order to sustain life on the planet. However, by burning fossil fuels such as coal, oil and gas - and by destroying forests around the world - we have drastically increased the levels of carbon dioxide in the atmosphere, and is causing temperatures to rise.

Almost all scientists agree that we are already experiencing the negative effects of global warming. Glaciers are melting, plants and animals are no longer able to survive in their natural habitats, and we are experiencing erratic weather patterns (such as storms and droughts) more often. The rise in temperature is a very real threat to our planet, and human behaviour is directly responsible for it.

I agree that global warming is a real problem, but what does it have to do with waste?

When waste or rubbish is not managed properly, it causes different types of pollution. The greenhouse gas methane is one example. Methane, which is 24 times more harmful to the environment than carbon dioxide, is produced when the organic waste in landfill sites decays without the presence of sufficient oxygen.

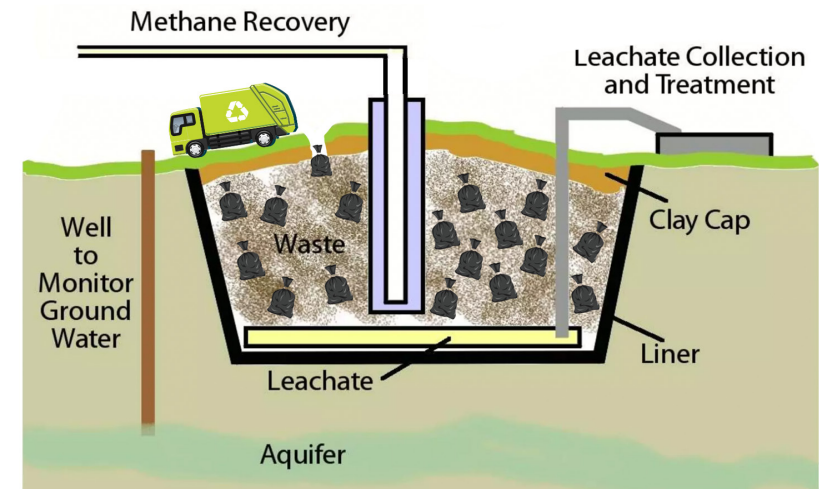
Furthermore, landfills can also pollute soil and groundwater. Considering the fact that the earth is a closed system, all resources that we remove from the system by burying them in landfills or burning them, are lost to us forever.



FAST FACTS: WHAT IS A LANDFILL SITE?

A landfill site commonly known as a "tip", is a scientifically chosen, designed, engineered and managed location for the disposal of waste. It needs to be relatively close to where waste is generated in order to limit transportation costs.

On delivery, waste is spread, compacted and covered with soil, sand and rubble. Modern landfills are lined with watertight plastic sheeting, but in the case of old landfills, natural clay barriers are relied upon to prevent toxic leaks.



Leachate is a liquid that forms when water goes through garbage or trash. It picks up all kinds of toxins.

This liquid can be very harmful to the environment and to people's health, so we have to be careful with it.

That's why landfills have special ways of collecting the **leachate** so it doesn't get into the ground or water supply. They treat it to make it safe and then dispose of it in a way that won't harm the environment.



Once waste is buried, it lies there to decompose, this takes an extremely long time.

- A plastic bottle, for example, can take up to **1 000 years to decompose completely**.
- Newspapers from **100 years ago** were recently discovered at a landfill site and they were still perfectly readable!

JUST HOW BAD IS THE WASTE PROBLEM IN CAPE TOWN?

Capetonians produce thousands of tons of waste every single day. The Western Cape disposes of enough waste to fill a row of trucks equalling the distance from Cape Town to Gauteng.

All of this waste ends up at one of Cape Town's two remaining landfill sites:

- **Vissershok,**
- **and Coastal Park.**

The amount of waste going to our landfills is growing too rapidly, and it is becoming increasingly difficult to find new environmentally suitable sites to create more landfills.

This means that we can do one of two things: transport our waste greater distances, which will lead to far higher service tariffs for Capetonian households and businesses, OR **we all need to commit to minimising waste.**

How can we minimise waste?

We can minimise the total output of waste by making an effort to reduce, reuse, recycle and RETHINK the way we produce things, when we discard them and how we dispose of the waste.



REUSE
REDUCE
RECYCLE
RETHINK

Quick Guide:

- Use a reusable bottle/cup for beverages
- Use reusable grocery bags, and not just for groceries.
- Purchase wisely and recycle.
- Compost it!
- Avoid single-use food and drink containers and utensils.
- Buy secondhand items and donate used goods.

DID YOU KNOW WE HAVE TWO TYPES OF WASTE CLASSES

GENERAL WASTE	HAZARDOUS WASTE
The first type is general waste, i.e. waste that does not pose an immediate threat to man or to the environment. Examples of general waste include household waste, builder's rubble, garden waste, etc. Although it is not immediately toxic, general waste can produce leachate over time, which is very harmful to the environment. <i>Did you know that these items can be recycled.</i> • Building Rubble • Garden Waste • Tins and Metals • Cardboard and Paper • Glass • Plastics • Organic Waste • Electronic Waste	The second type is hazardous waste, i.e. waste that is legally defined as 'hazardous' in the state in which it is generated. Waste is classed as hazardous based on its chemical reactivity or toxicity, explosiveness, corrosiveness, or other characteristics that may cause, or may likely to cause, real environmental danger. <i>Many of these items can be taken to a designated DROP-OFF SITE FOR HAZARDOUS HOUSEHOLD WASTE.</i> • Health Care Risk Waste • Fluorescent Mercury Lights • Dangerous Chemical Batteries • Electronic Waste • Motor Oil • Cooking Oil • Old Paint • Chemical Containers www.capetown.gov.za/solidwaste



Learners at your school will need to understand both waste types, to be able to distinguish between waste which is safe to recycle, and that which needs to be managed outside of the school's recycling programme.

GENERAL WASTE

Next, you will need to know about each of the different waste streams in order to identify which forms of waste can and cannot be recycled.

Let's talk recycling.

We all buy canned foods and beverages on a daily basis. Have you ever stopped to think about what happens to the can once you throw it away? Does it become part of the hundreds of tons of used cans that are recycled in the Western Cape every month?

Collect-a-Can claims to recycle more than half of all beverage cans in South Africa and claiming to support collection entrepreneurs and thousands of individuals to source an income.

The recycled metals are used to make new products of the same quality - thus conserving irreplaceable natural resources. There is a huge demand for steel scrap metals worldwide; in fact, South Africa exports almost half of the scrap it recovers.

It does not matter if cans are crushed, rusted or burnt- they can all be recycled!

When cans are collected for recycling, they are sent to a recycling facility where they are sorted, cleaned, and melted down to create new products. This process helps to reduce waste and conserve natural resources.

There are different types of cans that can be recycled, including aluminum cans and steel cans:

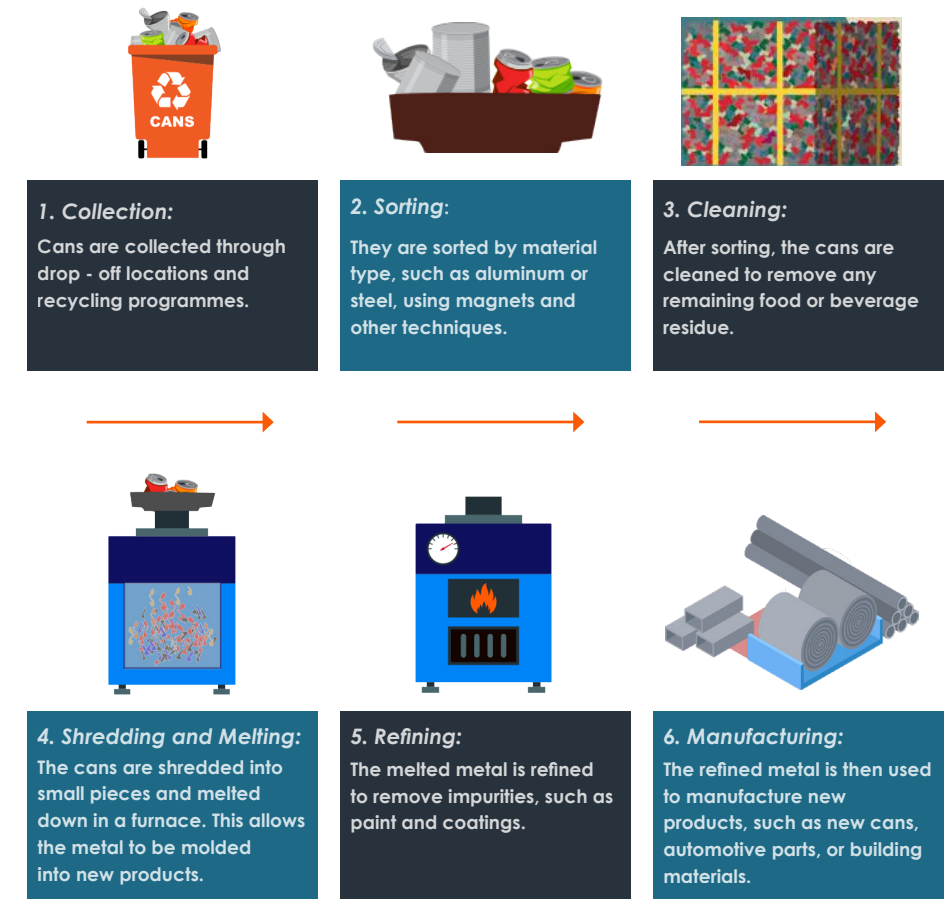


Aluminum cans are typically used for beverages, such as soda and beer.



Steel cans are often used for food products like canned fruits, vegetables, and soups.

The process for recycling cans typically involves the following steps:



Creative and practical ways to reuse cans instead of throwing them away.

Here are some ideas:



Plant pots:

Use empty cans as plant pots for small herbs or flowers. You can paint them in different colors or designs to make them look more attractive.



Candle holders:

Create unique and stylish candle holders by using cans of different sizes. Just remove the top of the can and insert a candle.



Pen and pencil holder:

Use an empty can to store pens, pencils, and other stationery items on your desk.



Bird feeder:

Turn an empty can into a bird feeder by cutting out a hole and adding birdseed. Hang it outside and enjoy watching the birds.



There are many other ways to reuse cans. Use your creativity and purposeful ideas too and share it with others.

CARDBOARD AND PAPER

It is important to understand the impact that our actions have on the environment. One way that we can make a positive impact is by recycling cardboard and paper.

Cardboard and paper recycling is important for several reasons:

It helps to conserve natural resources: When we recycle cardboard and paper, we are reducing the need for cutting down trees. By using recycled materials instead, we can conserve natural resources and reduce the environmental impact.

It reduces waste in landfills: When we throw away cardboard and paper, it ends up in landfills where it takes up space and can contribute to greenhouse gas emissions. Recycling these materials diverts them from the landfill and reduces the amount of waste that we generate.

It saves energy: Recycling cardboard and paper requires less energy than producing new materials from new resources. By using recycled materials, we can save energy and reduce greenhouse gas emissions.

It creates new products: When we recycle cardboard and paper, it can be used to make new products such as paper towels, tissue paper, and cardboard boxes. By creating new products from recycled materials, we can reduce the need for new materials and conserve natural resources.

Get Involved:

Encourage your classmates to recycle paper and cardboard too. Setup a recycle programme. You can also set up signs and reminders around the school.



Below is a list of the paper types that can be recycled.

- Old memos/letters
- Computer paper
- Used photocopy paper
- Windowless envelopes
- Old books (you could donate to be re-used)
- Pale-coloured paper (invoice etc.)
- Newspapers
- Magazines
- Cardboard (flattened)

The following cannot recycle:

- Wet or dirty paper (tissues, paper towel, food wrappings, paper with spills)
- Wax or plastic-coated packaging for liquids (milk cartons)
- Self-adhesive paper (Post-it™ notes)
- Carbon paper
- Chemically treated fax or photographic paper
- Dog food bags, potato bags, wax-coated boxes



Remember to remove staples, sellotape, Prestik and pins/paper clips.
Books and magazines could also be donated to be re-used.

Fun Fact

For every ton of paper that is recycled, 17 trees are saved, and 40% less energy and 30% less water is needed to produce new paper.

Today, recovered paper is the most important raw material in the production of paper and cardboard in South Africa. In addition, many well-known South African newspapers are being printed on paper that contains 25% recycled paper pulp.

GLASS

Glass is almost 100% recyclable. More than 185 000 tons of glass is recovered and recycled in South Africa every year. Green, amber and clear glass can be recycled, and it does not matter if the bottles or jars are broken.

Remember to remove bottle tops (recyclable plastics), lids (metal ones are recyclable as well) and corks from the glass before placing it in recycling bins.

Did you know?

Recycling a glass bottle saves enough electricity to light a 100 W bulb for four hours; and for every ton of glass recycled - 1,2 tons of raw material and 114L of oil is saved.

Fun Fact

Research shows glass manufacturers in South Africa are working to improve the energy efficiency of their products, by using more energy efficient equipment and furnaces (heating devices), improving the efficiency of the products through design, and making supply chains more efficient.

How would you re-use your bottles?

Here are some ideas:



Flower Vase



Candle Holder



Storage Container



Instead of wasting water from the sink, reuse that water to clean and rinse the bottles before reusing or recycling them.

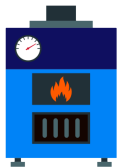
Glass recycle process



1. Collection: The first step in glass recycling is the collection of used glass. This can be done through various means, like recycling programmes, drop-off centers, or commercial collection services.



3. Cleaning: The glass is cleaned to remove any impurities such as labels, caps, and other contaminants. This is typically done using a combination of water, air, and vibrating screens.



5. Melting: The **cullet** is then melted in a furnace (heating device) at high temperatures, between 1425 degrees Celsius & 1540 degrees Celsius. It's then molded into new products, such as bottles, jars, iberglass etc.



7. Reuse: The final step in the process is the reuse of the recycled glass. This can take many forms, including the manufacture of new glass products, such as bottles and jars, or the use of recycled glass in other applications, such as concrete or asphalt.



2. Sorting: Most glass is sorted into clear, green, and brown colours. This is important because different types of glass have different melting points and mixing them can result in poor quality recycled glass.



4. Crushing: The cleaned glass is then crushed into small pieces, called **cullet**. The **cullet** is typically about the size of a pea and is free of any sharp edges.



6. Quality control: Throughout the recycling process, quality control measures are taken to ensure that the recycled glass meets certain specifications, such as colour, purity, and strength.

PLASTIC:

Recycling plastics is easy. The trick is to make sure you know which plastics can be recycled separately, and which should only be recycled together. Typically, the following kinds of plastics are grouped together for recycling:



1. PET: Polyethylene terephthalate – carbonated softdrink bottles, juice and mineral water bottles, some jars, some household cleaners and food trays

2. HD-PE: High-density polyethylene – deeply coloured opaque bottles (milk, scouring powder, fabric softener, household cleaners, salt, etc.), supermarket carryout bags



3. PVC: Polyvinyl chloride – clear plastic bottles, clear trays for foods and toiletries

4. LD-PE: Low-density polyethylene – frozen-vegetable bags, garbage bags, building film, soft supermarket carryout bags, fridge bags, soft squeezable bottles



5. PP: Polypropylene – most yoghurt, margarine and ice-cream containers, screw-on bottle caps, potato chip bags, straws and lunch boxes

6. PS: Polystyrene – some yoghurt and similar containers (if they crack when bent sharply), take-away food tubs, clear meat pack trays, egg packs, disposable cutlery



7. Other – automotive and appliance components, cooler boxes



When it comes to recycling plastics, the 'wash and squash' rule applies – rinse the container, and then squash it. Paper labels can be left on the containers.



Plastic caps and lids are now recyclable, as recycling facilities are recycling them. Recommend to clean the bottle & the caps, crush the plastic bottle before putting the lid back on.

Please note plastic caps are usually made of a different type of plastic than the container, and are not always recyclable.

 **TIP:** Don't let your used water go down the drain. Instead, consider using it to wash your recyclables.

Plastic recycle process:



MELTING AND REMOLDING:

The shredded plastic flakes are melted down and turned into pellets, which can then be used to create new plastic products. These pellets can be melted again and molded into new products like containers, toys, and furniture.

What can you do to get involved?

Reducing your plastic usage is a great way to help the environment. Here are a few tips to get started:

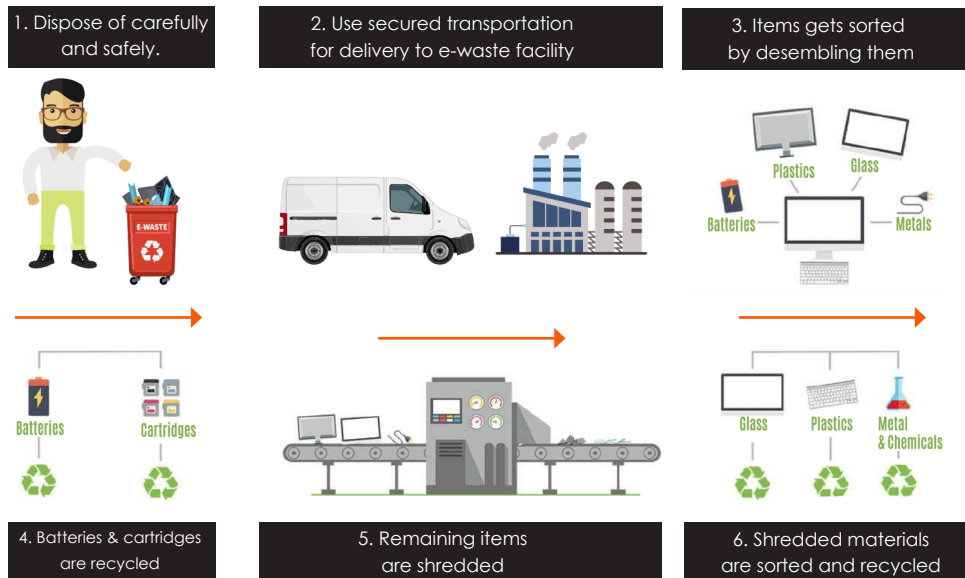
- **Use reusable bags:** Bring your own reusable bags when you go shopping instead of using plastic bags. Many stores sell reusable bags, and they can be used for a long time.
- **Avoid bottled water:** Carry a reusable water bottle with you and refill it throughout the day. This will help reduce the number of plastic water bottles you use.
- **Say no to straws:** Skip the straw when you order drinks at restaurants, or bring your own reusable straw.
- **Use reusable containers:** Use reusable containers for your food instead of plastic bags or wrap. You can use glass, metal, or BPA-free plastic containers.
- **Avoid single-use plastics:** Try to avoid products that are designed to be used only once, like plastic utensils, cups, and plates. Instead, use reusable alternatives.
- **Recycle:** If you do use plastic, make sure to recycle it properly. Check your local recycling guidelines to see what can be recycled in your area.



IT BEGINS WITH YOU!

By making small changes in your daily habits, you can reduce your plastic usage and help protect the environment.

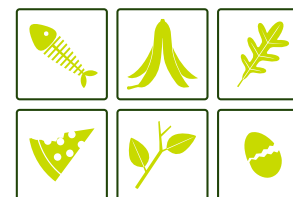
ELECTRONIC WASTE (E-WASTE)



E-waste includes computers, TVs, stereos, DVD players, fax machines, cellphones, and other electronic household appliances that have been thrown away by their original owners.

E-waste should definitely be recycled, because it is a valuable source of secondary raw materials. It will also become toxic if it is not treated and discarded properly.

ORGANIC WASTE



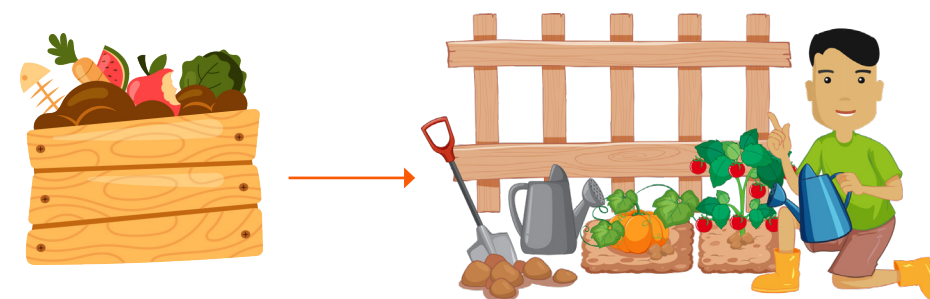
What do we know about organic waste, and how does it affect climate change?

We know organic waste is any material that is compostable, such as vegetables, food scraps, or fruit peels. These should be separated from the rest of your kitchen waste and be composted into a compost heap.

When organic waste or food is dumped in landfills, it produces METHANE gas.

These gasses are also called Greenhouse Gasses and could contribute to accelerating climate change. By managing your food waste at home, you could generate less food waste going to landfill.

Compost and grow your own Food.



Composting and growing your own food have many benefits. Composting helps to reduce waste and create nutrient-rich soil for plants, while growing your own food provides access to fresh, healthy produce and reduces reliance on store-bought items. It also promotes sustainable living by reducing carbon emissions associated with the transportation and packaging of food. Additionally, gardening can be a fulfilling hobby that promotes physical activity and reduces stress.

WHAT IS FOOD WASTE?

Food waste is your food scraps, fruit peels or leftover food ending up in your waste bin. Examples: Leftovers from a meal, expired food, stale food and blemished fruits and vegetables. When thrown in the bin and taken to landfill, it degrades in the ground and also produces methane gas.

HOW TO AVOID FOOD FROM BECOMING WASTE, ENDING UP IN LANDFILL.

- Buy only what you need
- Prepare smaller portions and freeze leftovers
- Leftovers not consumed can be composted

Planning	• Make a shopping list and to plan meals • Check what is in your fridge and cupboard
Shopping	• Stick to your shopping list • Avoid impulsive buying • Avoid buying in bulk, especially if you don't have the facility to store it at the correct temperature • Grow your own food
Storage	• Store food at the correct temperature, follow the instructions on the label. • Look at your expiry and best before dates , to make sure food does not spoil/expire • Keep storage area clean and organised
Preparation	• Plan meals • Avoid preparing excessive food
Leftovers	• Leftover food can be composted • Food to be consumed at a later stage should be stored in air-tight container and in the fridge or freezer • Do not keep food at room temperature for more than 2 hours • Keep left overs for 3 to 4 days • Find recipes to use your leftovers as ingredients for new meals



Arrange food items in storage by placing those with closer expiration dates towards the front, and those with longer shelf life towards the back.

HOME COMPOSTING

Composting refers to the natural process of recycling food scraps and organic waste. Kitchen scraps, twigs and dead leaves are great for making compost. It can be used to feed your soil when creating your own food garden. By doing home composting you reduce food or organic waste being disposed at landfill.

Find out more: www.capetown.gov.za/solidwaste
<https://bit.ly/CCT-SW-Education>

What is compost and how is it made?

Compost is a mixture of ingredients used to fertilise and improve the soil. Therefore, composting is recycling plant and food waste through the decomposition of the organic material, where worms can help you with the decomposition process.

What can be composted?

Compostable	Non - Compostable
• Garden waste such as grass cuttings, leaves, soil, branches • Vegetable and fruit peelings • Tea leaves and tea bags • Coffee grounds • Egg shells • Paper, cardboard, sawdust and wood shavings • Wood fire ash • Seaweed (in moderation, as it is very salty) • Torn up newspaper and kitchen towels	• Anything that doesn't rot, like metals, glass and plastics • Meat (it attracts rodents) • Garden waste sprayed with pesticides • Toilet or septic tank sewage • Dead animals • Cooked table scraps (only if your system can accommodate these)

BENEFITS OF COMPOSTING.



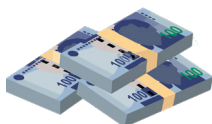
Reduce Waste: Composting is a great way to reduce the amount of organic waste that ends up in landfills. By composting, you can divert food scraps, yard waste, and other organic materials away from the landfill.



Soil Health: Composting is an excellent way to improve soil health. Compost contains nutrients that plants need to grow.



Reduce Chemical Fertilizer Use: By composting, you can reduce your reliance on chemical fertilizers. Compost is a natural fertilizer that can help improve soil health without the use of harmful chemicals.



Cost Savings: Composting can save you money on fertilizer and waste disposal costs. Instead of buying fertilizer, you can use compost to nourish your garden.



Environmental Benefits Composting is an environmentally friendly practice that can help reduce greenhouse gas emissions and conserve resources. By composting, you can help create a more sustainable future for yourself and future generations.

STEPS TO COMPOSTING

The easiest way to make compost is simply to create a pile of organic waste, about 1 m wide, in a sheltered and shady corner of the garden. To keep the heap tidy, you might prefer to make it in a container. A sealed container is advisable to discourage rats.

Follow these steps:

- 1 First, throw down a layer of coarse material consisting of twigs and straw for aeration (air to move through).
- 2 Place alternate layers of "brown" (dried leaves) and "green" (fresh grass cuttings or kitchen waste) material in equal proportions. If available, put some manure (or seaweed) as an activator layer in between.
- 3 Sprinkle non-potable water (greywater or rainwater), soil, and shredded paper intermittently between the layers until your heap is 1,5 m high.
- 4 You can build layers up over time as you accumulate kitchen waste, mow the lawn, prune shrubs, or rake dry leaves. Keep the heap covered with a layer of straw, soil, or old carpet to keep rats, insects and other pests out.
- 5 Soil is needed to introduce beneficial organisms, such as earthworms and woodlice, into the pile to help the decomposition process.
- 6 It is useful to have an extra pile of material (dry leaves or shredded newspaper or soil) to place on top of the heap to cover kitchen waste. This will keep it away and ensure that there is little or no smell.
- 7 Water the heap regularly (keep it moist, but not wet, with non-potable water) and turn it over with a garden fork after a few months to speed up the process.
- 8 The compost is ready to use when it is dark, crumbly, and smells like soil. This can take between 6 weeks and 6 months, depending on the time of year and the organic material used. A good idea is to have 2 or more compost heaps, so you can have one breaking down, while the other one is being added to.

Find out more:

<https://bit.ly/CCT-SW-Education>



WHY SHOULD SCHOOLS GET INVOLVED?

Now that we know why waste needs to be managed properly - and that Cape Town is facing a potential waste crisis - we arrive at the next important 2 questions:

What is waste minimisation? - Waste minimisation is a set of processes and practices intended to reduce the amount of waste produced. By reducing or eliminating the harmful and persistent waste, it supports efforts to promote a more sustainable society.

Why is it important for schools to get actively involved?

Here are some of the most important benefits of implementing waste minimisation clubs / programmes in schools:



1. **The future:** getting involved means taking responsibility towards our environment of our school and community.



2. **Innovation:** It presents the school with new learning opportunities: Recycling at school is an exciting way to enrich the curriculum, as it offers a realistic context for learning.



3. **Sustainability:** It moves your school towards sustainability, Implementing a waste management programme can be a great first step towards making your school more sustainable.



4. **Cost:** A well-implemented school recycling programme is an opportunity to generate an income for your school.

TURNING YOUR SCHOOL INTO A WASTE WISE SCHOOL

Now that we understand the two different types of waste and the various waste streams, let's take a look at the five steps your school needs to take in order to become a waste wise school:

1. Set up a waste management committee for the school
2. Conduct a waste audit
3. Reduce the waste your school produces like paper to digital.
4. Reuse materials to prevent them from becoming waste
5. Set up a waste recycling programme at your school

SETTING UP A WASTE MANAGEMENT COMMITTEE

The first step in setting up a successful waste management programme in your school is to ensure that all roleplayers get involved.



Your Committee consists of:

1. Waste co-ordinator,
2. School management,
3. Educators,
4. Parents,
5. Learners and
6. School's cleaning staff.



The roleplayer is assigned specific roles and responsibilities. Overall, the success of a school recycling programme depends on the collaboration and coordination of various roleplayers.

1. Waste coordinator



Your first task will be to identify the school's waste coordinator (leading waste champion). Ideally, this will be a fairly senior educator within the school (someone from within top school management). The waste coordinator will be responsible for heading up the waste management

committee, and coordinating the waste programme in the school. More specifically, he/she will need to:

- take responsibility for initiating, planning and implementing the waste audits;
- develop and drive the implementation of action plans to reduce, reuse and recycle waste within the school environment;
- raise awareness of the school's waste management programme and highlight the roles that each of the key players need to perform;

This could be to:

- provide training for school staff
- set up and chair regular meetings with the school's waste committee;
- keep the school's head master and all roleplayers informed.
- raise awareness within the surrounding community, to generate financial assistance for the initiative.

2. School management

It would be ideal if the school's principal to champion the programme showing support and be the lead driver for waste minimisation at the school.



Regular meetings with the waste minimisation committee are important to ensure workings of the committee are smooth and progress is monitored.

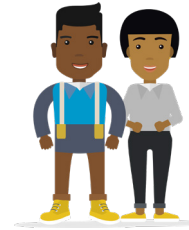
They will also deal with challenges and work on new waste avoidance ideas.

3. Educators

The committee should also consist of two or three other educators. Depending on how the teaching body is structured, educators should ideally be from different portfolios of the school - for example, one educator could come from the environmental club, one from the arts and cultural group, and one from the sporting club.



4. Parents



The success of the waste minimisation programme, specifically the school's recycling centre, will depend on support from the parent body (bringing waste to school from home for recycling, and offering to help in the recycling centre). It is, therefore, vital to have parents on the waste management committee.

Since parents are only involved with the school while their children are there, it is important that an ongoing parenting body, such as the Parents Body, assists in making sure that two or three committed parents are available to be part of the waste management committee each year. It may actually be a good idea to ask the Parents Body to take responsibility for electing the parents that will take part on an annual basis.

5. Learner representation

Having learners on the waste committee is vital, since they will assist in generating awareness and support amongst their peers.

One idea is for the student body to vote for their own learner representatives.

Another option is to have learners on a rotating roster, so that they may have chances to lead and learn about the processes behind the waste management programme.

6. Cleaning Staff

The school's caretakers and cleaning staff are very important if the initiative is to be a success. It is thus recommended that they also be involved in the waste committee.

An idea would be to invite them to participate in key planning sessions, or to hold regular sessions to bring them up to date on how the programme is doing. The role they are playing in making it a success, and how they could further assist in helping the programme to succeed.

They can also play a monitoring role and could assist notifying collectors when the bins are full and need emptying.

Now that your waste committee has been established, you can move on to conducting your waste audit.



IDENTIFY YOUR SCHOOL WASTE

To find out how much and what type of waste your school currently throws away, your waste committee will need to obtain the necessary permission, support to plan and conduct a complete waste audit. However, start with the walk-through waste audit, asking the following questions:

Where does your school produce most of its waste? Schools produce waste in classrooms, offices, dining halls, computer rooms, bathrooms and on the playground. Finding out where certain types of waste are produced in your school, will help you to position your recycling points effectively.



What types of waste are produced? Some of the more common waste types produced by schools include paper and cardboard, paper towels, food, milk cartons, cold-drink cans and plastic packaging. Understanding what types of waste materials your school produces will help you to decide which of the waste streams your recycling centre should focus on.

How much waste does your school produce? Knowing roughly how much of each waste type your school produces will help you to plan what size bins your recycling centre will need. You can also use that information to measure whether your school's recycling efforts have reduced the amount of waste you are throwing away.

The below table will assist you with the walk-through waste audit and answer the questions above.

WALK-THROUGH WASTE AUDIT			
#	Location/Events	Type of Waste	What happened to it
1			
2			
3			
4			

CONDUCTING A WASTE AUDIT

A. Material You will need the following:

- Bagged rubbish
- Old carrier bags (eight for each group involved in the audit)
- 10-20 large bin bags
- Spring balances or newton meters
- Ground sheets/floor cover
- Clipboards with copies of the recording sheet
- Rubber gloves for everyone involved
- Overalls or old clothing

B. Preparation

- Pick an average school day on which you will audit your school's waste. Let all the staff know when the audit will take place.
- Carry out a risk assessment - consider what the dangers associated with the audit might be, and put measures in place to minimise them.
- You may want to send a letter to the parents to inform them about the activity, ask them to provide old clothing for the children to wear on the day, and possibly to request the assistance of adult volunteers.
- Ask the school's caretaker to save one day's waste from the entire school, including non-teaching areas such as bathrooms, staff rooms, offices and the playground.

- Ask the caretaker to look through the bags, remove sharp objects, and label each bag with the area of the school it came from (for example, classroom 1, playground, etc.) Ensure that the bags of food waste are clearly labeled and kept separately. Store all bags of waste safely overnight.

C. The Audit

- Clearly explain all the health and safety issues to the learners involved in the audit. Gloves should be worn at all times, and learners should call an adult if they see any sharp objects in the rubbish.
- Weigh all bags containing discarded food, and capture the results in grams on the recording sheet. Once you are done, you can dispose of the waste in the usual manner.
- Divide the learners involved in the audit into three to four groups. Each group should have a ground sheet to work on, a recording sheet and pencil, and a set of spring balances or newton meters.
- Get each group to empty the bags of rubbish - one at a time - onto the plastic mat, and sort it into the different types of waste shown on the recording sheet below.
- Groups should have a separate carrier bag for each waste type. They will sort the waste into these bags, and weigh them using an appropriate spring balance or newton meter, before logging the results on the recording sheet.

- Once the contents of the carrier bags in each group have been weighed and recorded, empty them into larger bin bags and reuse the carrier bag.

- When all bags have been sorted and the data has been recorded, dispose of the general waste and recyclables.

The next step is to calculate the daily, weekly and yearly waste totals for the school. Multiply the daily totals by five for the weekly results, and the weekly

totals by 38 (the average number of weeks spent at school per year) for the yearly results. Work out the percentage of different types of waste produced.

- Compare waste data from different areas around your school to identify the waste 'hot spots' (places where most of the waste is being generated).

- Discuss your findings: What are the most common types of waste? Is any of it recyclable? Which type of waste would make the biggest difference if recycled?

- This is the information you will use in planning how to **REDUCE, REUSE AND RECYCLE** your school's waste. Remember to **RETHINK** the way the school generates waste and how it could be recycled.

- Present your findings to the rest of the school through an assembly or newsletter.

PUPIL WORKSHEET: Waste audit

Date(s) of audit: _____

Area of school	White paper (g)	Colour paper (g)	Card-board (g)	Plastic (g)	Metal (g)	Glass (g)	Food waste (g)	Other (g)	Total (area)
Example: Classroom 1	200 g	140 g	80 g	40 g	0 g	0 g	100 g	40 g	600 g

Material	School total (kg) per day	School total (kg) per week (x 5 days)	School total (kg) per year (x 38 weeks)	%
White paper				
Coloured paper				
Cardboard				
Plastics				
Metal				
Glass				
Fabric				
Food waste				
TOTAL				100%

REDUCING THE WASTE THE SCHOOL GENERATES

The best way to solve the waste problem in Cape Town is to reduce the amount of waste we produce. Depending on the outcome of your waste audit, your school should try and focus on the waste stream(s) you are producing the most of.



Here are some tips on how to reduce the waste you generate:

- Avoid buying products with excessive packaging.
- Recycle the excess packaging.
- Recycle toner cartridges where possible.
- Recycle disposable containers the school generates like plastic bottles.
- Reuse scrap paper for art or create note books.
- Avoid all toxic and hazardous products. For example, try to use organic cleaning products in your school and at home. They are safer for you and for the environment.



Why not allocate a waste corner within each class and ask learners to come up with a clever way on how to reduce the waste being generated. Implement the viable ideas, and track the effect it has on the school's waste generation.

Award the class whose recommendations have the biggest impact on the volume of waste the school produces.

REUSING THE WASTE THE SCHOOL GENERATES

As a waste champion, it's crucial to keep in mind that not all waste is worthless. Recycling and reusing some waste can be incredibly beneficial

By discovering creative and efficient methods to reuse waste, your school can reduce its expenses, generate additional revenue, and minimize the amount of waste being disposed in landfills

Here are a few useful pointers to assist your school in repurposing the waste it produces:

1. Sort the waste:

Proper waste segregation is the first step towards effective waste management. Separate recyclable materials, organic waste, and non-recyclable waste into different bins.

3. Set up a recycling programme:

Recyclable materials like paper, plastic, and glass can be sold to recycling companies, generating revenue for the school.

5. Implement waste reduction

measures: Reduce the amount of waste produced by using reusable products, encouraging students to bring lunch in reusable containers, and avoiding single-use items.

2. Create a composting programme:

Organic waste can be transformed into nutrient-rich compost that can be used in the school garden or sold to generate income.

4. Donate usable items:

Items such as books, clothing, and electronics can be donated to local charities or schools in need.

6. Be creative:

Encourage students and staff to come up with creative ways to repurpose waste. For example, plastic bottles can be turned into planters, and old t-shirts can be made into cleaning rags.

By implementing these pointers, your school can significantly reduce its waste output, save money, and generate income.



Based on your audit, allocate a waste stream to each class in your school, and task them with coming up with different possible ways to reuse that waste.

Ask each class to produce a project showcasing the ideas they have come up with, and put these projects on display around the school. Implement the good ideas around the school.

SETTING UP THE SCHOOL RECYCLING FACILITY

Having carefully looked at what waste the school is creating, ways to reduce that waste, and ways to reuse the materials before they are wasted, the final step in the move towards effective waste minimisation is to set up the school's recycling facility.

Recycling refers to the separation of recyclable waste from the general waste stream, the processing of these materials, and their reuse. Recycling not only saves resources, but it also reduces the environmental impact of manufacturing new products, and the impact of waste at landfills.

Many successful recycling businesses have been set up in South Africa, for example, Collect-a-Can and the Glass Recycling Company.

These businesses offer employment opportunities to a large number of people from the surrounding communities and, in so doing, contribute to growth and development in our country.

Let's take a look at the different aspects of setting up a recycling centre at your school.

What will your facility recycle?

To decide which of the waste streams your recycling centre will work with, you should consider the results from your waste audit. The success of your facility will, to a large extent, depend on the access you have to the various waste streams.

If, for example, your audit showed that your school does not throw away much glass, then you will need to either leave glass out of your recycling plans, or depend on outside sources to bring glass into the facility.

Here are some ways to make sure that you are benefiting from all the waste that is being generated at school:

Learners could, for example, get involved on a rotational basis. Think about any equipment that learners or other 'internal collectors' will need, and how often you would want them to collect.



Internal recycling points

- Make recycling easy by positioning recycling points as close to the source of waste as possible, for example, place a paper recycling bin next to the photo copier/printer.
- Label recycling points clearly, so that everyone knows where they are, and what they are for.
- Put recycling points and normal rubbish bins next to each other.
- You may be provided with internal recycling containers by your collectors, or you can use data from your waste audit to help you decide what type, size and quantity of recycling bins will best suit the needs of your school.

External sources of waste

Looking to external sources of waste is definitely recommended for a school recycling facility. Here are some possible outside sources that you could consider across all waste streams:

- Learners' homes (for organic waste, plastics, glass, cans and paper)
- Restaurants near your school (specifically for glass and cans, and perhaps also for organic waste)

Collecting from internal recycling points

- Decide who will be tasked with emptying the internal recycling containers and delivering waste to the recycling facility.
- Retail outlets near your school (specifically for cardboard boxes that merchandise is delivered in)
- Businesses that operate near your school (for the supply of high-quality white paper, etc.)
- Other schools close to your school that have not implemented their own recycling programme, and that are happy to supply waste from their school and from their learners' households to your facility

The distance between your school's facility and the various waste sources, as well as how you will get the waste from those sources to your facility, needs to be carefully considered. Although access to more waste will certainly enable you to generate more revenue, you need to be sure that the costs of getting the waste to your recycling facility do not exceed the benefits.

 **IMPORTANT:** You must ensure that your recyclables are collected regularly to prevent waste accumulation, which can create health risks. Ensure that the recycler is a City accredited collector.

Who will collect your waste?

Once you know which waste streams your facility will recycle, you need to choose your collectors, and make arrangements with them. Here are some things to consider when making your decision:

TYPES - Look at what type of waste each collector will pick up. This is especially important when it comes to plastics, as they all melt at different temperatures, and collectors tend to recycle only one type of plastic.

This has implications for sorting, as you need to know which plastics need to be separated from one another during the sorting process.



PRICE - Which collectors will give you the best price for the waste that you have collected and sorted? The more you sort your waste, the better the prices you will be able to secure. For example, you are likely to get less for paper if you send all your paper products - newspapers, magazines, white paper (office paper) - to the same recycler, than you will get if you sell specific products to specific collectors or customers. You could, for example, sell good quality magazines to second-hand bookstores.

The price that you can secure for the different waste streams will vary depending on the collector you are dealing with, and the level to which you sort your waste. For example, you can usually get 1 cent per kilogram of recycled paper, but if you separate the white office paper from the other paper products, and sell that, you can secure up to 45 cents per kilogram (prices are always subject to change so always check for updates.)

Consult the waste map for your City accredited collectors:

<http://web1.capetown.gov.za/web1/wasterec/map>

Below is some idea of what collectors and recyclers are willing to pay:

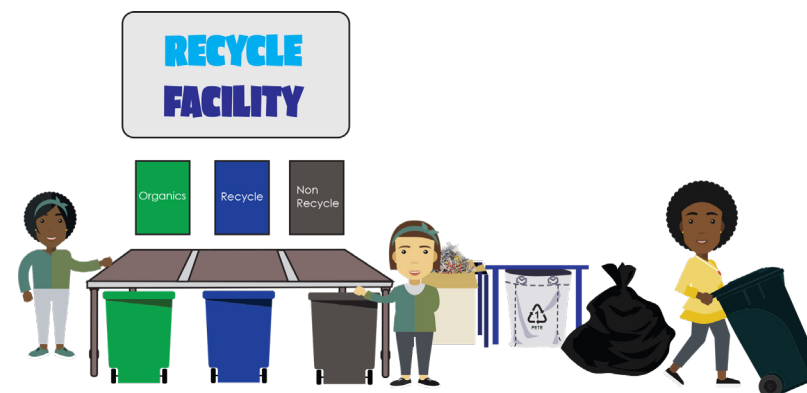
Waste stream	Example price
Plastics – depends on the company you are dealing with and the level of sorting you are prepared to do, for example, removing caps and lids	Between 85c and R1,20 per kilo for PET 1, 2 PE-HD, 5PP
Glass	13c per kilo
Cans	33c per kilo
Paper – as above, depends on the level to which you are prepared to sort your paper products (varies from company to company)	Approx 15c per kilo for mixed paper, 45c per kilo for white office paper

VOLUMES - What quantity of waste do collectors/recyclers require you to have before they are prepared to pick it up? Consider the implications in terms of the amount of storage space you have available in your centre - for example, a smaller facility should work with collectors that are happy to pick up smaller quantities of waste. Most plastic collectors tend to want you to have five to six bale bags available before they will collect. Glass, paper and can recyclers would prefer to collect once your containers are full.

What will your facility recycle?

Once you have decided on the waste streams that you will recycle, you need to consider the infrastructure requirements associated with setting up your facility. Here are some aspects you need to consider:

Location - where will your facility be based?



SPACE: Your recycling facility will need sufficient space for you to accommodate, sort and store the waste that comes in. Most collectors will only pick up once you have reached sufficient volumes, so you will need to be able to store the sorted waste until you reach their volume benchmarks. You will also need space to store the bins that the recycling companies deliver to your site for paper, glass and cans. Taking all of these requirements into account, the ideal place will be at least as large as a double garage.

ACCESS: Your facility must also be accessible, so as to ensure easy delivery of waste coming in from external sources, as well as waste collection. The ideal place will have a parking area big enough to turn a small truck.

HEALTH AND SAFETY: Because a recycling facility processes and stores waste materials, you need to pay careful consideration to the health and safety aspects. From a health perspective, consider the odor that the waste might generate (especially if you are dealing with organic waste and composting). Also, think about the effect of insects such as flies that may be attracted to your facility. Ideally, your facility should be placed away from high-traffic areas within the school, and away from school's neighbors who may not be open to having the facility located close to their properties. If paper is one of your waste streams, you need to consider fire risks, and put the relevant measures in place - for example, no smoking on the site. Also, make sure that you have a fire extinguisher readily available, and that staff know where it is and how to use it in case of an emergency.

Bricks and mortar - what do you require?

SIZE: When considering the actual structure you will need to have in place or build for your recycling facility, consider the following:

As mentioned before, a space that is at least as large as a double garage is recommended.

PROTECTION FROM THE ELEMENTS:

Your centre should offer the people working there as well as the waste (that has been delivered, is being sorted, or is being stored) protection from heat, rain and wind. A structure that contains four walls, a roof, a window (to let in light and fresh air when required) and large double doors (that big bale bags can easily fit through) is recommended.



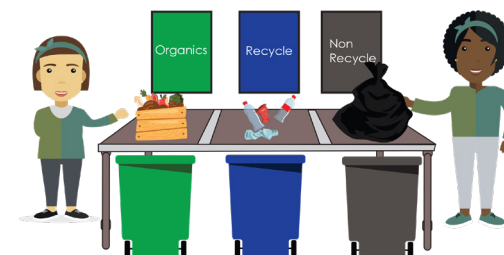
Extra height is also advantageous, as it will enable you to store waste, such as bale bags, on top of one another.

SECURITY: To prevent vandalism and minimise the risk of your sorted waste being stolen, you need to be able to secure your recycling centre when it is not being manned. The structure itself should be lockable, and you should have a fence with a lockable gate around the perimeter.

WATER AND ELECTRICITY: You will need access to water to ensure the staff can wash their hands after working with the waste. Electricity will allow you to keep a light on at night, which will assist with security. Electricity is also important for running the office.

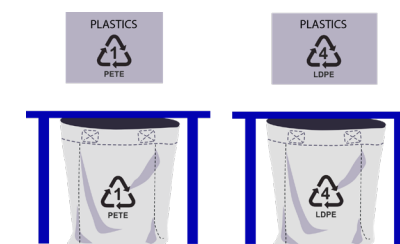
OFFICE SPACE: Your centre will need easy access to a telephone, and ideally, a fax machine and e-mail facility. This will help you to set up initial agreements with waste suppliers and collectors, and to notify collectors once your waste is ready to be collected.

Waste equipment - what will you need?



SORTING TABLES: You will require a sufficient number of sorting tables to handle the volume of waste that comes into your centre. Tables should be easily accessible, and should have sufficient space around them. Consider labelling tables so that new members of staff can quickly catch on in terms of where each of the waste streams should be sorted.

BALE BAGS FOR PLASTICS: You will need containers to manage each of your waste streams. For plastics, you will need bale bags and ideally, stands on which those bags can be hung. These stands support the bags, and make sure that they stay open, which makes it easier to drop sorted waste into them, and to check that the same plastic types are being stored together. Make sure that your bale bags are clearly labelled (e.g. PET 1 or PET 4) to assist sorters with where to place which plastics, and to make sure that collectors pick up the right bags when they come to the centre.



CONTAINERS: Your recycler will drop off the necessary containers for glass, cans and paper. If required, label them to assist sorters.



WHEELIE BINS: You will also need one or two wheelie bins on site so that you can dispose of non-recyclable waste that might have been sent to the facility by mistake.

Safety - what measures should you put in place to minimise risk?

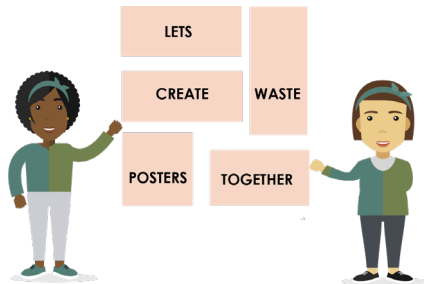


CAUTION: It's important to be careful when dealing with sharp or dangerous objects/ waste. It's not safe for you to handle them on your own, so always make sure there's an adult around to supervise and assist you. Safety should always come first when it comes to handling waste.



VEHICLES: From a safety perspective, consider the vehicles coming to and from the facility, and make sure those working in the facility are not at risk.

Why not liven up your recycling facility by asking pupils at the school to create posters based on the idea of waste management and the role it plays in protecting the environment, which you can put up for display around the facility? This will also increase the learners' level of personal involvement in the facility.



Teach learners and the facility staff about hazardous waste and the more environmentally friendly options that can replace hazardous cleaning products. Ask learners to create artwork (posters/ murals) that showcase hazardous waste products, and include information on how to safely dispose of such products. Display this artwork around the recycling facility to ensure that all sorters are aware of what to look out for, and how to deal with hazardous waste should they come across it.

Staffing your facility



When it comes to staffing your facility, think about the volume of waste that will be coming into the facility each week to determine how many people you will need to sort it. Should your facility not have financial resources to hire staff to run it, you will need to work on a volunteer basis. Ask the school's Parents' Association to assist you in finding parents who are able to help.

You could also consider this as an opportunity to uplift unemployed members of your community by offering them jobs at the recycling facility. This will obviously affect the profit you are able to generate, but the social responsibility aspect may help you to generate financial sponsorship from local businesses

Take into consideration that your facility may be staffed by several different groups of people on an ongoing basis. Ensure that the processes that need to be followed are clearly laid out in order to guarantee that the centre always runs efficiently, whoever is staffing it

Finances

In addition to helping to combat the waste crisis in Cape Town, a well-run recycling facility is also likely to generate some revenue for the school. You will need to work out how this money will be handled.

You should also think about how the money that the facility is generating will be used. Are there specific projects that the school needs to raise funds for, or can the profits be used to enhance the recycling operation by hiring a manager, purchasing a bakkie, etc.



GENERATING AWARENESS AND LONG-TERM SUSTAINABILITY

The long-term success of the school's waste management programme will depend on the initial awareness and understanding that you create, and the long-term commitment to making it work. Here are some tips to help you in terms of launching the programme, educating people about how it will work, and keeping the programme going.

CREATING AWARENESS

In general

Recycling should be seen as fun and easy. Think about organising an exciting launch event that will involve the entire school, parents, leading members of the local community, businesses (who have already offered to support the initiative, or who you would like to approach for support), and the local media.

Among staff

Hold an introductory meeting with all staff members, including the cleaning staff. Explain why the school would like to implement a waste management system, and how the recycling system will work. Communicate the role everyone needs to play in ensuring the initiative is a success.

Run a **staff waste management training session**. Make sure that all members of staff understand the process - from the initial waste audit, through to organising external and internal recycling collections, and determining the roles of individual staff members.

Create a calendar displaying key dates and milestones for the programme. Place the calendar, together with information about the programme, on staff notice boards.

Run follow-up training sessions in order to give staff ideas about how to include **waste management topics in the curriculum**.

Among learners

Get the learners that are members of the waste management committee to present the waste management plan during assembly. Think of ways to make the presentation fun, exciting and interactive.

Give fortnightly updates during assembly to inform learners about how the programme is progressing. **Showcase key milestones and successes on notice boards and the school's website.**

Think about **organising social activities based on waste management**, such as **community cleanup** days where learners go out into the community and help to collect litter. **Give learners branded bibs or hats to wear on the days that they are collecting-waste from school recycling points.**



Arrange a visit from a member of your local authority's waste management department.

Among parents

Follow up the launch event by sending home a 'How to Recycle' guide for all parents. This guide should clearly outline what parents can and cannot send to the school's recycling centre, as well as the way in which recyclables should be delivered - for example, washed and rid of all excess water, etc.

Make sure that you have a member of staff as a waste champion - someone who has accepted responsibility for keeping the momentum going and moving the programme forward. Ensure that the **waste champion** continually monitors the scheme, and provides feedback to the waste committee. The waste champion must also keep the head educator as well as the rest of the staff up to date regarding the programme's progress and upcoming initiatives.

Put measures in place to ensure regular updates from the people who manage the recycling centre. They will have a clear idea of the volume of waste that is coming in and how it is changing. If it starts to decrease, they will be able to alert you so that you can put measures in place to remotivate learners, parents, staff and cleaners. Centre staff can also alert you to any problems the programme might be experiencing.

Ask the **Parents Association** to include the waste management programme as an item on the agenda of their meetings.

Include a regular waste management update about any achievements and new initiatives that are being planned in the school's newsletter.

Ask parents who might have ideas about how to **improve the programme or generate sponsorship money** for the initiative to contact the waste management committee.

If the level of involvement and commitment drops off, ask educators to include waste management related topics in their lesson plans. Consider field trips to give learners a first-hand view of a landfill, or bringing in an expert to talk to learners about waste and the impact it has on the environment.

Reward the school when the programme works well - everyone likes recognition for success. **Talk to the local media** about the programme and what it has achieved to see if you can secure press coverage. **Set up rewards for waste management champions** - the class that comes up with **the best way to reuse waste**, or the class that produces the **best waste awareness posters** for the school recycling centre. Also, look out for any national or regional awards and competitions that your school could enter.



Finally, consider **succession planning**. To make sure that the waste management programme does not falter when the elected waste champion(s) leave the school, put some succession planning tactics in place. For example, there will always be a Parents Association, so

give them the task of electing the two parents who will serve on the waste management committee each year; or make sure that the head educator elects a waste champion from within the staff complement on an annual basis, and that running the waste management programme is part of that educator's job description for the year.

Ongoing communication plan

Identify communication channels – assembly, educator meetings, staff meetings, notice boards, newsletters, posters. Include information on:

- reasons for controlling waste
- advantages of controlling waste
- Win with Waste programme objectives and how it works
- fact finding and audit process
- launch date
- implementation and operation guidelines



School awareness programme

- Ongoing awareness plan
- Implement internal recycling programme in the school
- Include recycling-related activities in the curriculum
- Launch recycling programme
- Series of competitions with winning entries to be used for launch activity and ongoing

Awareness Programme:

- Drama/song using costumes and musical instruments made from waste
- Poster competition
- Leaflet
- Slogans
- Art from waste
- Teaching aids from waste

Join in competitions organised by recyclers or other organisations. Arrange school outings to landfill sites, recycling depots, etc. Check your local environmental education centre to see if it offers education programmes on waste and the environment.

CRITICAL FACTORS FOR SUCCESS

Throughout the booklet, we have discussed a number of factors that are central to your school being able to set up and run a waste management programme. Here is a summary of all the boxes you need to tick to ensure your venture will be a success:

People to champion the cause - Make sure you always have a waste champion in place, backed up by a number of committed waste champions.

Support from the top - Ensure that members of the school's top management understand and support the waste management programme. This should be seen as an integral part of the school's day-to-day operations.

Support from the staff - Work to ensure that the entire faculty, the school caretaker and the cleaning staff understand and are supportive of the waste management programme.

Recycling facilities - Setting up the right infrastructure and equipment is very important. You've got to create a safe and secure area where your recycling operation can run smoothly. It's crucial to keep it locked up when school is out to prevent people from dumping trash illegally or stealing the sorted waste. Additionally, display clear and informative signs throughout the school, this is crucial to making recycling as convenient as disposing of waste.

Recycling staff - Your centre will need people to run it on an ongoing basis. Remember that you will also need someone with great communication and negotiation skills to get you the best deals from suppliers, collectors and recyclers.

Ability to generate awareness and understanding - Make sure staff, learners and parents are aware of the waste management programme, the benefits associated with recycling, and what is required of them. Communication is crucial to keep these key groups updated on how the programme is doing, and what is planned next.



A FEW CONTACTS TO CONSULT

1. **Solid Waste education resources:** <https://bit.ly/CCT-SW-Education>
2. **Commercial Recycling:** <https://www.capetown.gov.za/Work%20and%20business/Greener-business/Commercial-recycling>
3. **City Recycling services:** <https://www.capetown.gov.za/Family%20and%20home/residential-utility-services/residential-solid-waste-services/recycling-services>
4. **Waste Map:** <http://web1.capetown.gov.za/web1/wasterec/map>
5. **City of Cape Town Recycling guide:** <https://www.capetown.gov.za/Family%20and%20home/greener-living/recycling-at-home/recycling-guide>
6. **Recycling Depot & Centres within the Western Cape:** <https://community-services.blaauwberg.net/recycling-depots/recycling-depots-and-centres-western-cape>
7. **PECTO:** <https://petco.co.za/start-recycling/>
8. **Coca-Colca Schools Recycling Programme:** <https://www.coca-cola.co.za/sustainability/world-without-waste/collecting-recycling/the-schools-recycling-programme>
9. **DNF school Recycling:** <https://dnfwaste.co.za/school-recycling/>
10. **The Greater Tygerberg Partnership:** <https://gtp.org.za/zero-waste-schools/>



CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

It begins with you.
Keep our schools clean and
change the way we waste.

