guidelines for school recycling

A publication of Department of Forestry, Fisheries and the Environment

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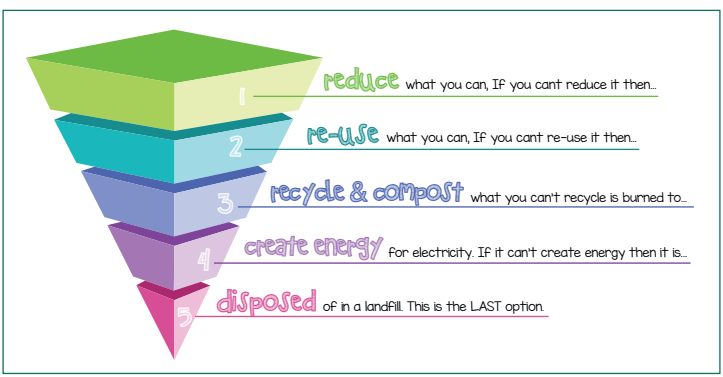
table of contents

introduction

The National Environmental Management: Waste Act (Act 59 of 2008) and subsequently the National Waste Management Strategy (NWMS, 2011) are based on the principles of the Waste Management Hierarchy (Figure 1) which is a framework used worldwide. Recycling in this hierarchy is one of the key waste management options in order to avoid disposal to landfill. In the South African context, the recycling industry is still in its infancy and needs to be further developed. Emphasis is therefore placed on promoting recycling of waste through the creation of an enabling environment for industry to develop processing facilities as well as educating and assisting other role players, especially the waste producers to also facilitate recycling. This guideline is therefore developed with the aim of facilitating schools to initiate recycling programmes.



Waste management hierachy

Promoting the waste hierarchy (reduce, re-use, recycle, recover) has the following benefits:

- Conserve natural resources by re-using the waste for the manufacture of new items instead of using natural resources all the time.
- Save landfill airspace so that our landfill sites can last for longer and not need additional land which we can use for other things e.g. agriculture, housing etc.
- Contribute towards reducing the contributors to global warming (landfill gas).
- Saves energy. It is proven that the production of some products from recycled materials uses far less energy than the production of the same product from raw materials.
- Reduces pollution which could have resulted in the disposal of the material e.g. oil
- Creates jobs. The involvement of people in the value chain creates additional job opportunities.

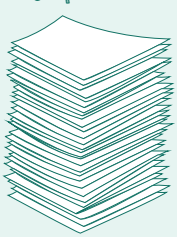
the waste management hierarchy has the following steps:

- First step is to **avoid the production of waste,** thereby reducing the amount of waste produced
- Second step is to **re-use most of the waste** that is produced
- Third step is to **recycle** whatever could not be reused
- Fourth step is to use whatever could not be recycled **for energy recovery**
- Last option is whatever could not be used at these stages can be **disposed to landfill.**

reduce

Reduce is when the production of the waste is minimised. Eg: The following can be done to minimise the generation of waste paper.

- Print on duplex (double-sided/back-to-back) instead of one page i.e. 4 pages of a document when printed on duplex will only use 2 pages
- Circulate draft documents, minutes and memorandum instead of printing for each teacher in the school
- Use electronic media wherever possible



Annual paper consumption **simplex**

13,000 sheets

Annual paper consumption **duplex**

6,500 sheets

Annual paper consumption **duplex & 2 pages on 1**

3,250 sheets

Paper reduction= CO_2 reduction

Based on a weekly consumption of 250 sheets

NB! Reducing the amount of paper used has the following benefits:

- A cost saving on the procurement of paper!
- Decreased contribution to greenhouse gases (Co2 reduction)
- Reduction in the use of natural resources (trees)

Re-use

Re-use is when the waste is used again. Below are some of the ways of re-using paper:

- Reuse one sided printed documents as scribbling notes
- Create items that can be used for other functions
- Create art crafts

Examples are given below:

Paper


Paper dolls


Paper bowl


Paper crown


Paper plate

Can/tin

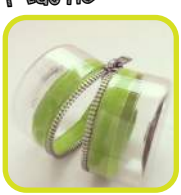

Stationery holder


Art craft


Toy camera


Toy car

Plastic


Zip container


Plastic chicken


Plastic bag


Art craft

Glass


Flower vase


Photo frame


Lantern


Mosaic/ glass collage

recycling

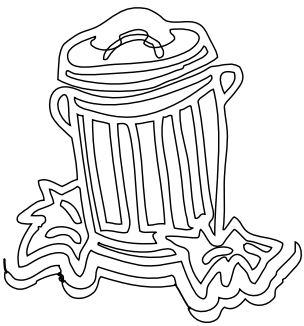
Recycling involves a chain of events as explained below and illustrated in Figure I:

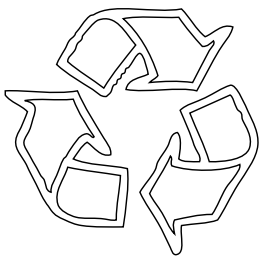
- **Sorting:** Selecting recyclables from the general waste stream and separating the recyclables according to the different types (e.g. bottles, paper, cans etc)
- **Storing:** The waste can then be stored in their respective bins with different colours. This may range from 2 bins where all recyclables are placed in one bin and the rest of the waste in another, or more bins with different colours to further segregate the recyclables into their different waste streams e.g. paper, cans, bottle etc.
- **transporting:** The waste can be transported to a buy-back Centre, a drop-off center, material recovery facility (MRF) or a recycling plant. The ultimate destination for recyclables, even the one that was transported to a MRF, Buy-back Centre or drop off is the recycling plant where the material can be processed to produce another product.

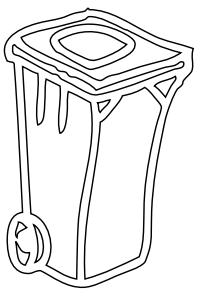
Figure I: Recycling Value Chain

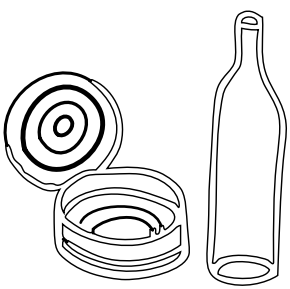
Colour me in

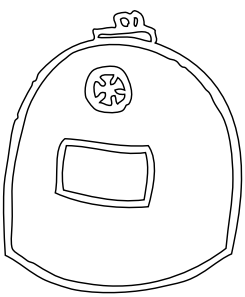
Be creative and colour in the objects below.

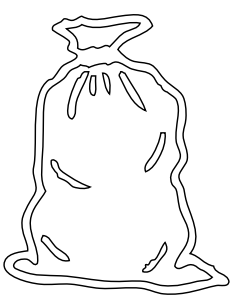


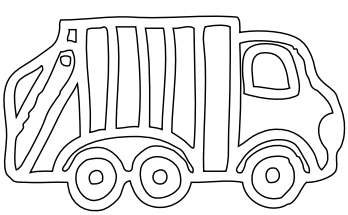


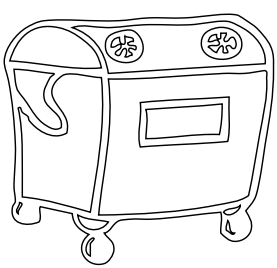










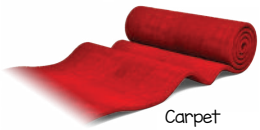


Create a story from the objects by joining them and giving them numbers on a flow diagram from when waste is created until it is collected for recycling.

Processing of waste entails the cutting/grinding, rinsing, melting and remanufacturing of the different recyclable materials into new products. Examples are given below:

Plastics

Plastic beverage bottles


Carpet


Sleeping bag & Ski jacket insulation


Polar fleece


Back pack

Paper


Waste paper


Memory stick


Cards


Paper bags

Cans


Metal cans


Bicycle parts


Appliances


Rebar


Car parts


Steel beams

How to start a school recycling programme?

There are easy practical steps to follow when establishing a recycling programme in your school as listed and illustrated in the diagram below.

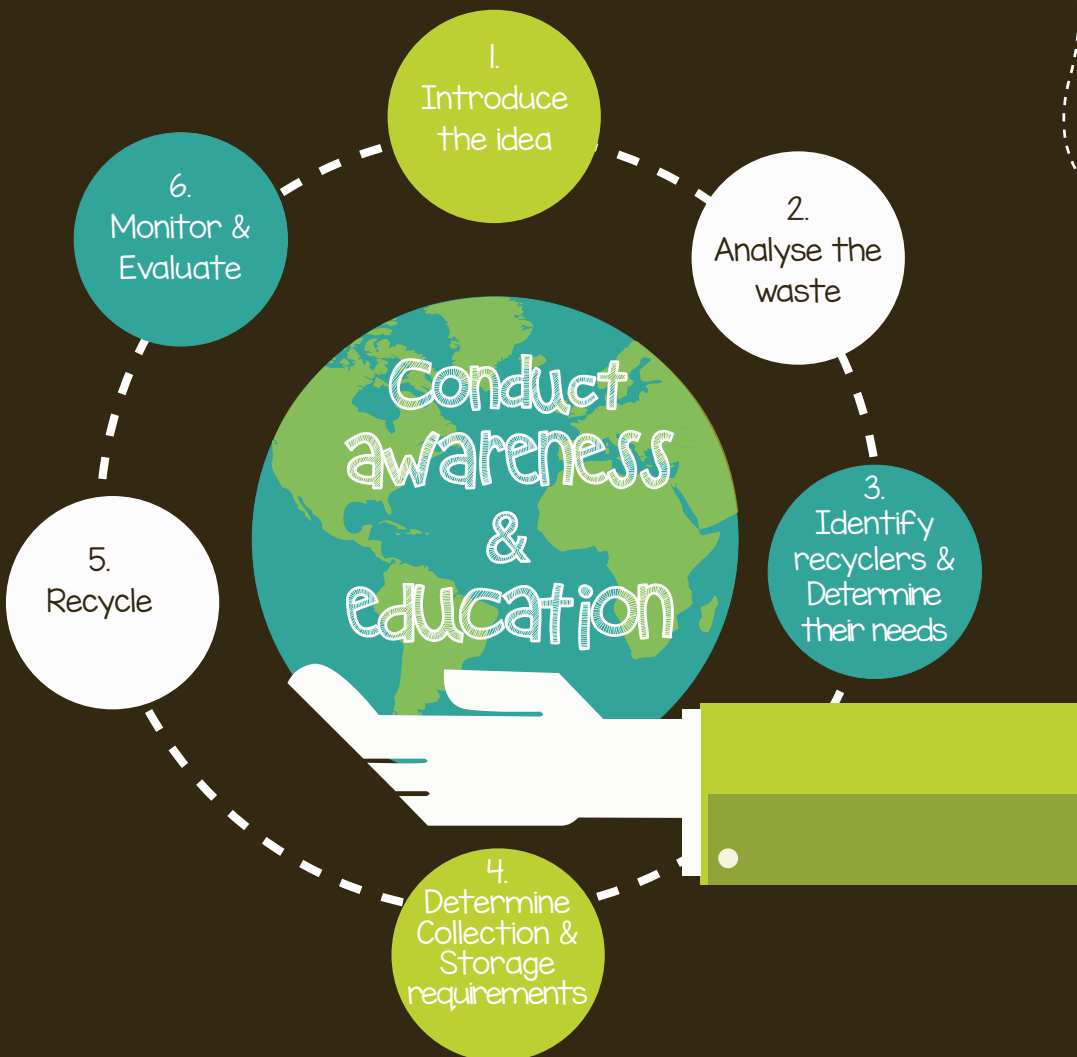


Figure 3: Recycling Programme Process

1. Introduce the idea and set up a waste management committee/team

The idea can be introduced by either:

- A learner: You can talk to your class teacher and request that you explore the possibility of starting a recycling program in the school. The teacher, with permission from the school principal will allow you to use some time during school hours to start with the planning stage.
- A teacher: A teacher can talk to the principal and introduce the idea to determine and promote the appetite for the project in the school. Once the principal agrees, the teacher will then request the learners to assist with the planning stage of determining the feasibility of the project.

Form a team that will assist in executing the tasks. The team should comprise students, teachers, other staff members (auxiliary).

NB! Getting the buy-in and participation of all relevant stakeholders is important in ensuring the success of the programme.

2. Analyse the waste / Conduct a waste audit

It is important to determine how much and what types of waste your school is currently throwing away. Analyzing the waste quantities is important in order to establish the viability of the project. This exercise will assist you to set the goals of the programme and establish the infrastructure needs e.g. bins, storage areas etc.

Two aspects are important in this regard:

- Where does your school produce most waste? E.g. school offices, classes, library, laboratory or cafeteria. This will assist in determining where bins should be located and the types and numbers or sizes required.
- What types of waste is produced?: Eg: Paper, cardboards, glass ,etc

Waste Analysis Steps:

- Collect waste on a daily basis for a week from each of the generation area school office, class room, library, laboratory and cafeteria.
- Weigh the waste and average the weight over the five days.
- Multiply the answer from 2 by 20 days to get a monthly average.
- Now separate the waste into the different recyclable streams (Box I below shows a list of different waste types that can be recycled).
- Repeat steps 2 to 3 for each waste stream.

NB! The waste can be weighed separately from each generation area and then combined to get the overall weight of the school per week then multiplied by four (4) to get a monthly total).
Choose a week that is fairly normal, that is, where there are no special celebrations or gatherings as these may result in more waste generation, which may not be reflective of the normal generation rates of the school.

Waste that can be recycled

Paper (books, printed paper, posters cardboard, newspapers, magazines)

Glass (containers - jars and bottles)

Plastics (bags and containers - bottles)

Metal (Food and drink cans)

Tetra Packs (foil lined containers e.g. milk and juice boxes)

Polystyrene/Styrofoam

Electronic equipment (computers, printers, cartridges, floppy discs, projectors and electric cables as well as electric bulbs).

Notes:

- ♻ Remove all caps and lids
- ♻ Empty all contents and rinse (Bottles and jars)
- ♻ Flatten all plastic and paper containers/boxes
- ♻ Ensure that glass bottles are not broken

3. identify recyclers

Based on the quantities of the different waste streams.

- You can then decide which waste streams your recycling programme will focus on.
- You need to have sufficient quantities to ensure the sustainability of your programme.
- You then need to contact the relevant recyclers in your area or that operate in your area to make arrangements for them to collect your waste.

important aspects to note:

Determine and compare what the different recyclers in your area can offer and require from the school:

- Types and quantities (tonnages/kilograms) they require for collection or the frequency of collection
- Whether they can provide you with receptacles (bins) and whether you need to pay for them
- Whether they pay for your recyclables
- Whether they can come and collect or you have to deliver to their facilities

(NB! compare the prices for self-delivery or them collecting)

* If there are no known recyclers in your area, contact the National/Provincial Department of Environmental Affairs or any of the companies under the resource section for further assistance.

You may need to draw up a budget for the programme based on what you can get for free and what you may need to purchase!

4. Collection & Storage requirements

Based on information collated from the above steps (1 - 3) you can now determine the collection and storage requirements.

Important aspects to note:

- What type of collection containers and sizes will be needed for the classrooms, halls, storage areas, etc.? e.g. boxes, bins or bags and how big should these be.
- Does the school have indoor space to use as a central collection and storage area? If not, is there space for a large outdoor container within the school yard?
- How will the recyclable materials be moved from the classrooms to the collection and storage areas?
- Who will be responsible for moving the recyclables to the storage area from classes, offices and other areas of the school?

  NB! This can be included in the normal cleaning routine or alternatively have either of the two -

  * A student assigned from each classroom to empty the classroom bin as part of a daily routine
  * Have classrooms to alternate the responsibility of moving the recyclable materials to the main storage bin.

- Will the recyclable materials be picked up by a Waste collector? Or will a designated person from the school deliver the recyclable materials to the processor/ recycler?
- Bins should be clearly marked as to what materials should be disposed inside. You can decide to have the bins identified in different colours as an alternative to marking/ labeling.
- If an outdoor recycling bin is needed,
  * Will there be room for the truck to maneuver and empty the containers?
  * How will contamination of the recyclable materials be prevented?

5. Recycle

Having done all the planning and organisation, your recycling programme is ready to be implemented. Don't forget to make the programme exciting throughout implementation to ensure that it is not forgotten.

if it's recyclable, remember-don't throw it in the bin.
recycle it!

6. Monitor & Evaluate

It is important to review the achievements of the recycling programme against the goals set. This will provide opportunities to review the programme and allow for improvement.

It is important to keep records of the following:
- ♻ Amounts produced per week, per waste stream collected.
- ♻ Costs incurred to procure bins, labels and to construct storage areas.
- ♻ Amounts of recyclables collected and the money made from such.
- ♻ The money made from collected recyclables.

Awareness and Education

This is the most important part in ensuring the success of the programme.

You need to ensure that all learners, teachers and other staff members know about **the project, why you are doing it and how to play their roles.**

This is an element that has to run from the inception to implementation phases on an on-going basis.

Tips on Awareness and Capacity Building:

- ♻ Organise guest speakers or site visits to recycling facilities.
- ♻ Develop fun ways to encourage participation e.g. a competition
- ♻ Distribute information including feedback on how the programme is doing on an on-going basis through:
  - * Pamphlets
  - * School bulletin
  - * Create a website
- ♻ Create a logo, slogan or theme for the recycling project - Have learners participate in this creativity
- ♻ Include the community by having kids bring waste from home or their community during "Bring more recyclables day" and have them educate their communities and share in class how they did it.
- ♻ Make recycling to be entertaining - Let the learners do an artwork, drama or musical play during assemblies and for the parents during meetings or school closing

resource 1: benefits of recycling

What are the benefits of recycling?

- **Save natural resources:** Conserves natural resources through reducing the need to extract and drill on sensitive land for raw materials required for product making.
- **Save energy:** Recycled material used as replacement of raw materials requires less energy and water for production of products.
- **Reduce pollution:** Recycling contributes positively to carbon footprint as there's less emission into the environment from the manufacturing process and transportation.
- **Save land:** If more waste is created and not recycled, it can only be disposed off which will mean that land is required for landfill development and there is a risk of ground water pollution and land degradation.
- **Can get cash for it:** Saves cost as it's more expensive to mine natural resources, transport and process it for product making. Selling recyclables also result in income and can create jobs.

resource 2 : recycling companies

The Glass Recycling Company (TGRC)

1. Promotes and facilitates the recovery of waste glass for recycling
2. The company runs school competitions in Gauteng, KwaZulu Natal (limited to Ethekwini and Umsunduzi Municipalities) and Western Cape (limited to the City of Cape Town Metro and the Cape Winelands District Municipalities)
3. Schools entering the competition need to collect at least 650 - 700 kg of glass every month
4. Awareness and promotional materials, glass banks and record book will be given to schools by the company
5. The glass banks will be serviced free of charge by the collection dealers
6. The glass can be mixed in a glass bank without having to separate into different colours

N.B! Limitation to the coverage of the competition is due to lack of glass collection dealers to service the banks. However, Schools interested in participating with the intention to instill the culture of recycling without expecting to get any monetary benefits can request for glass banks

Tel: 011 803 0767
Fax: 086 514 6198
www.theglassrecyclingcompany.co.za

Mpact (formerly known as Mondi)

1. Collects and processes waste paper for recycling -
   - Office paper
   - magazines
   - newspapers
   - cardboard
2. Provides bags and recycling bins to schools
3. Have free collections service and pay for recycled paper received from schools
4. Company collects directly from -
   - Gauteng
   - Kwa Zulu Natal
   - Western Cape provinces

   but have agents in all the other provinces to service schools in those areas
5. The company collects within a radius of 30 km from their branches

Tel: 011 538 8600
www.mpact.co.za

resource 2 : recycling companies

Collect-a-Can

1. Collects and processes waste Can/Tin for recycling
2. Runs school competitions, currently operate with schools in Gauteng, KwaZulu Natal, Western Cape and North West provinces
   - ♻ National School competition running from 1 February - 31 October annually - Collection of cans
   - ♻ CAN Craze Competition running from 1 June - 30 September annually - Create a character or structure with cans
3. Schools participating in competitions should have 500 or more learners
4. Collection done within a 100km radius from the branches
   - ♻ Check with the company which branch is closer to you within the mentioned provinces
5. Schools are paid for cans collected even if it's not for the competition
6. To assist with storage, Collect-a-Can will loan large collection bags to schools on collection
7. Minimum of 5 full rubbish bags per collection are a requirement
8. Cans to be separated -
   - ♻ beverage cans (colddrink and beer) ♻ aluminum ♻ aerosols ♻ food ♻ oil ♻ paint all put separately

Tel: 011 466 2939
Fax: 011 466-2928
www.collectacan.co.za

Remade recycling

1. Operator and trader of all recyclables -
   - ♻ Paper
   - ♻ Plastic
   - ♻ Glass
   - ♻ Cans
   - ♻ E-waste
2. Currently operate in Gauteng and North West (Rustenburg and Klerksdorp)
3. Schools can purchase bags and bins from the company
4. Have free collections service and pay for recycled materials received from schools
5. Awareness and promotional materials will be given to schools by the company branches.

Tel: 011 873 6545
Fax: 086 242 3606
www.remade.co.za

resource 3 : other recycling industry contacts

Below are contact details for other companies in the recycling industry that can be contacted to check if there is any collection/recycling agent in your area to take recyclables.

company name	description	contacts
Consol	Glass processors You can call them to find out if they have agents in your area.	T: 011 874 0000 F: 011 827 0210 Web Address: www.consol.co.za
PETCO	Promotes and improves the waste management and recycling of postconsumer Polyethylene Terephthalate (PET) products on behalf of all stakeholders in the PET industry in South Africa.	T: 086 014 7738 F: 021 794 1724/ 011 615 8874 Web Address: www.petco.co.za
Polystyrene Packaging Council (PSPC)	PSPC actively demonstrates the commitment of the polystyrene sector to the environment (through collection and recycling) and the safety and health of polystyrene food packaging users.	T: 012 259 0554 Web Address: www.polysterenepackaging.co.za
Sappi waste paper	Collects and process waste paper	T: 011 407 8111 Web Address: www.sappirefibre.com
Nampak recycling	Processors of All recyclables	T: 011 407 8111 Web Address: www.sappirefibre.com
Tetrapak	Processors of Tetrapak/ Carton	T: 011 570 3000 F: 011 570 3149 Web Address: www.tetrapak.co.za
Ewasa	Electronic waste association	T: 031 535 7146 F: 031 535 7001 Web Address: http://www.ewasa.org
The Reclamation Group	Collects and process Metals	T: 011 880 6410 F: 011 880 6222 Web address: www.reclam.co.za

resource 3 : other recycling industry contacts

You can visit this website to search for recyclers in your area.

www.mywaste.co.za
www.recycling.co.za
www.sayellow.com
www.capelink.co.za/profile.php?subscriberId=231
www.polysterenepackaging.co.za
www.faithful-to-nature.co.za/Recycling-Index-sp-5.html

resource 4 : dea & provincial contacts

The responsible departments at National and provincial level dealing with environmental matters in the country:

Province	department name	telephone
National	Department of Environmental Affairs (DEA)	T: 086 111 2468
Eastern Cape	Department of Economic Development, Environmental Affairs and Tourism (DEDEAT)	T: 043 605 7047
Free State	Department of Economic Development, Tourism and Environmental Affairs (DETEA)	T: 086 110 2185
Gauteng	Gauteng Department of Agriculture and Rural Development (GDARD)	T: 011 240 2500
KwaZulu Natal	Department of Agriculture and Environmental Affairs (DAEA)	T: 033 355 9621/4
Limpopo	Department of Economic Development, Environment and Tourism (DEDET)	T: 015 291 5447
Mpumalanga	Department of Economic Development, Environment and Tourism (DEDET)	T: 013 766 4843/6
North West	Department of Environment and Nature Conservation (DENC)	T: 018 389 5341
Northern Cape	Department of Economic Development, Environment, Conservation and Tourism (DEDECT)	T: 053 831 3530
Western Cape	Department of Environmental Affairs and Development Planning (DEADP)	T: 021 483 4091

Pack a waste-less lunch...

PACK:

- Snacks in re-usable containers
- Drinks in a re-usable bottle
- Re-usable utensils
- A re-usable lunchbox

Don't be a Wasteful Wally!

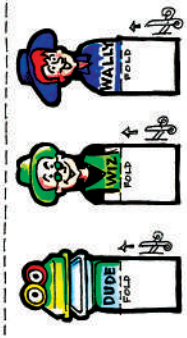
AVOID:

- Plastic bags, wrap or foil
- Disposable drink boxes and bottles
- Disposable forks, spoons
- Pre-packaged single-serve snacks

How to play...

Pick a character, cut out and tape to a bottle cap to make a counter.

Then... cut out the spinner, insert a thin stick or toothpick through the centre to make a spinner. Twirl the spinner on the board to get a number. The player who spins the highest number starts the game!



Don't Throw That Away!

recycle it.

TEL: 086 111 2468 FAX: 012 359 3625

CALL: +27 (0) 86 111 2468
WEBSITE: WWW.DFFE.GOV.ZA