



## Recycling Bottles & Cans Program

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## I. Introduction

### A. Background

Worldwide, approximately 5.8 million tons of plastic bottles and containers were collected in 2009. This gave 4.7 million tons of flake. 3.4 million tons were used to produce fibre, 500,000 tons to produce bottles, 500,000 tons to produce APET sheet for thermoforming, 200,000 tons to produce strapping tape and 100,000 tons for miscellaneous applications. (Source: PCI, [www.pciPETpackaging.co.uk](http://www.pciPETpackaging.co.uk) ) In DAIS and Huamei, people throw away approximately 25 bottles and cans every weekday, which means 125 bottles and cans will be collected in a week, 500 in a month and 4000 in a school year.

### What is white pollution?

White pollution refers to the environmental pollution caused by plastic products, like bottles and bags. It is very hard for the soil to absorb plastic, making it difficult for plants to absorb water and nutrients from the soil. Plus, the plastic can have a bad effect on the groundwater, which will eventually affect our health.

### B. Significant of Recycling

Plastic bottles can be found almost anywhere on Earth because plastic bottles are so useful that almost any liquid beverage or food product can be found being sold in plastic bottles. The practice of recovering scraps and waste plastic and reprocessing these materials into new products is called recycling. Recycling makes use of materials that are at the end of their useful lives which otherwise would be added to the waste stream and end up in landfills or (sadly) in the ocean and on our shores, which will pollute our environment severely. Recycled plastic bottles are an indispensable part of our lives. They are light in weight and almost unbreakable when used for their designed purpose. This is also the reason why plastics and plastic bottles account for a large part of the waste generated by our throwaway society. Plastic bottles are the most recycled plastic items but still the recycle rate is only about 24 percent.

### C. Benefit

Recycling has many benefits:

**Energy Conservation:** Producing new plastic products from recycled materials uses two-thirds less energy than making products from raw (virgin) materials, so recycling plastics frees up that energy consumption for other products and uses. In 2007, the U.S. recycled over 4 billion pounds of plastic, which saved enough energy to heat over 2.1 million homes.

**Reduced Greenhouse Gas Emissions:** When recycled material is substituted for virgin material, greenhouse gas emissions from extraction, preprocessing and production are significantly reduced.

**Beneficial Reuse:** Recycled bottles provide an environmentally friendly source for making new products and substitutes recycled materials for new plastic. Recycled plastic bottles make hundreds of everyday products, including fleece jackets, carpeting and lumber for outdoor decking.

**Greater Recycled Plastic Supply & Demand:** The more we recycle, the more recycled plastics are available, and the more recycled plastics that we buy, the more the industry will create. According to the American Chemistry Council, the demand for recycled plastics exceeds the available supply, and demand may increase given current green trends. Given this, the number of plastics recycling businesses has tripled in recent years.

**Save Landfill Space:** Recycling one ton of plastic saves 7.4 cubic yards of landfill space. (resources based on [www.earth911.com](http://www.earth911.com))

## II. Basic Information

### A. Bottles & Cans recycled

There are several different kinds of bottles and cans that we are trying to collect in this project.

#### 1. Beverage and Water Bottles

Most of the bottles that we collect are daily drinks bottles, for example, the beverage bottles that the school store sells to the students.

#### 2. Cans

The source of the cans originate from the students and guests who drink canned beverage at the café.

#### 3. Glass

People in the Dorms and Cafeteria often have glass bottles to recycle

### B. Preparation of Materials

The most important thing to get is a deal with a recycling company to come pick bottles and cans up regularly. See section III C for more information.

Also needed is a designated storage site to store all of the collected bottles and cans

#### Other Materials:

- 10 buckets. Buckets are placed near the bathroom; therefore, people will notice the recycling buckets more easily. It is convenient for people to throw

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their waste bottles and cans before or after they go to the bathroom.

Location	Number of Buckets
3rd Floor	2
2nd Floor	2
1st Floor	2
Basement	1
Cafe	1
Dorm 2 <sup>nd</sup> Floor	1
Dorm 3 <sup>rd</sup> Floor	1
Total	10

The following is the size of the buckets shown in **Fig. 3**.

	Height	Lid Diameter	Bottom Diameter	Weight
Recycling Bucket	63 cm	51 cm	39 cm	3.1 kg

Buckets will be decorated and marked “Bottles & Cans ONLY”.

- Multiple plastic bags
- Tape (To tie up the plastic bags)
- Gloves
- Masks (To protect from fumes)

## C. Collection Method

### Preliminary Plan

- Contact a recycling company to come regularly to your school to pick up the bottles and cans as needed (We have them come about once every two months, since our school is somewhat small)
  - **NOTE:** Make sure you know what they will accept, and what can and can't be recycled
- Gain a designated space to store the bottles and cans (We have a room in the basement that can be used for storage)
- Set up buckets and announce to student body about this program (We have two recycling buckets on every floor, plus a big one in the cafeteria)
  - **NOTE:** Make sure to place the buckets in easily accessible places, so people don't have to search for a place to recycle
- Make sure no non-recyclable trash or liquids are thrown into the recycling buckets by the students
- Set up more posters and announcements, especially if trash and liquids are

being thrown in the recycling cans

- Collect the trash regularly, as needed (we do it once a week)
- Sort the cans from the bottles, put them into plastic bags, tie them up, and put them in the storage space
- When the storage space is filled, contact the recycling company and have them pick the trash up

## **How to collect and sort the trash**

- Put on gloves and masks
- At each bucket, take the bag out and replace it with a new one
- Take all of the bags to the designated storage space
- Get more empty bags, and sort the bottles and cans by putting bottles in one bag, and cans in another.
- When the bags are almost full, use the tape to tie up the bags
- Store them in the storage space

## **D. Advertisement**

There are four ways for advertising shown below.

### 1. Email

The Recycling Bottles and Cans Group will email teachers and students to inform them about our project and the things that they should pay attention. The email is as follow.

*Dear teachers, administrators, and students,*

*Very soon, we will start the Recycling Bottles and Cans Program. Here is what the Recycling Paper Group hopes you to do:*

- *Throw waste bottles and cans in the recycling buckets.*
- *Don't throw anything else (waste paper, food, etc.) in it*
- *Pour out all of the liquids before throwing the bottles and cans away*

*The recycling program will collect the bottles and cans once a week.*

*Thanks for your cooperation!*

*Sincerely,*

*Environmental Applied Study*

### 2. Posters

Posters are a great way to increase awareness about the recycling program. Our poster, designed by a student, can be seen in **Fig. 1.**

## 3. DAIS live

Our recycling bottles and cans group is going to make a video to advertise our program. We talked to our technology and media teacher and asked him to put the video onto DAIS live, our student broadcast program.

## 4. Signs

Stick a sign on the buckets to differentiate the buckets with the normal garbage bins. Other signs will also be put beside the recycling buckets. The signs are shown in **Fig. 2**.

## III. Cooperation

### A. Teachers and Staff

All teachers and staff are hoped to do the following:

- Follow the School Recycling Plan and help improve the recycling project.
- Ensure that all students, teachers and staffs are following and practicing Recycling Rules.

### B. Students

1. Suggested ways for students to get involve:

- Select student monitors and volunteers to oversee if there are garbage in the containers.
- Initiate field trips to bottles and cans recycling factory.
- Set up a system that randomly awards students who get caught recycling.
- Organize curriculum for a special weeklong recycling and conservation program to be included in social studies, economics, and/or math classes.
- Provide community service credit hours for “Green Club” members who help with recycling before/after school hours.
- Promote pizza lunch for all who participate in the project.
- Have students participate in creating large visual displays to record and communicate the results of recycling efforts on a regular basis.
- Distribute reusable water bottles to students and staff to promote drinking water as an alternative to sodas and to reduce bottle waste.
- Reinforce recycling with the use of recycle containers at sporting events and school assemblies.

### C. Reclamation Depot

It is important to keep in close contact with the recycling company in order to ensure the bottles and cans are recycled. Make sure to make a plan with the recycling company you contact, including:

- When and how often the company will come
- How much money will be reimbursed
- Whether or not they require a set amount of bottles and cans to be collected before they can come to collect

## IV. Evaluation and Monitoring

### A. Benefits

The recycling bottles and cans program can make a profit for school, but more importantly, it can strengthen the awareness of responsibility for students and create a healthier environment for everyone.

### B. Monitoring

The Recycling bottles and cans Group will have an End of Year Report annually, informing students, administrators, and teachers about the status and benefits of the recycling program.

Fig. 1



Fig. 2



Fig. 3

