Category 4 Resource Development

Group ID 4-041

Project Salvage

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Abstract

The environment is at stake, and if we don't protect it, we won't have a healthy planet to live in. Enter our project, Project Salvage. The name comes from the root word of "salvage", or to rescue something that is already lost. Likewise, we aim to retrieve and restore the already damaged environment. Through raising awareness about problems our environment is currently facing as well as solutions to combat these problems among Hwa Chong students, we hope to reduce plastic, water and electricity intake, in turn saving our beautiful planet. We have prepared an easily accessible and comprehensible package of resources through the use of our website, posters, memes as well as animations, where we included statistics on current global problems as well as solutions to these problems. We also set up an Instagram account for our project, dedicated to uploading posts about problems our environment currently faces, as well as providing solutions to students so that they know how they can play their part in combating these problems.

1. Introduction:

1.1 Rationale

Humans are increasingly influencing the climate and earth's temperature by burning fossil fuels, cutting down rainforests and farming livestock. This adds enormous amounts of greenhouse gases to the atmosphere, increasing the greenhouse effect and global warming. Studies indicate that deforestation and landfills account for an estimated 25% of the global greenhouse gas emissions annually. It makes sense to work on reducing the adverse effects of landfills as much as on cutting down on the adverse effects of air travel. However, recycling has a massive impact on this problem. Recycling eliminates the need for new raw materials to make new products. For instance, recycling one ton of paper saves 19 trees from being cut. Tree preservation in turn leads to the protection of water catchment areas and promotes the capture of carbon dioxide, reducing greenhouse gas emissions and global warming. Recycling also reduces energy consumption. The process of extracting new materials would not only result in greenhouse gas emissions, but also consume more energy compared to processing recycled materials. Moreover, it is easy and requires minimal effort and time, therefore we decided to focus on recycling for our project.

1.2 Objectives

These are the objectives of our project

- Reduce waste generated in Hwa Chong Institution
    - Hopefully see a decrease in the amount of plastic used by students
    - Decrease in water and electricity waste in school

- Waste Targeted
    - Plastics
        - Plastic Containers
        - Plastic Bags
        - Plastic Cutlery

1.3 Target Audience

The target audience of our project are Hwa Chong students from Secondary 1 to 4, as we noticed that there is a huge number of students in this range who frequently pack their food from the canteen back to class to eat.

1.4 Resources

These are the resources we created for our project

1. Project Salvage Website
    a. Statistics
    b. Solutions
    c. Animations
    d. Posters
2. Project Salvage Instagram account
    a. Statistics
    b. Solutions
    c. Memes / Jokes

2. Review:

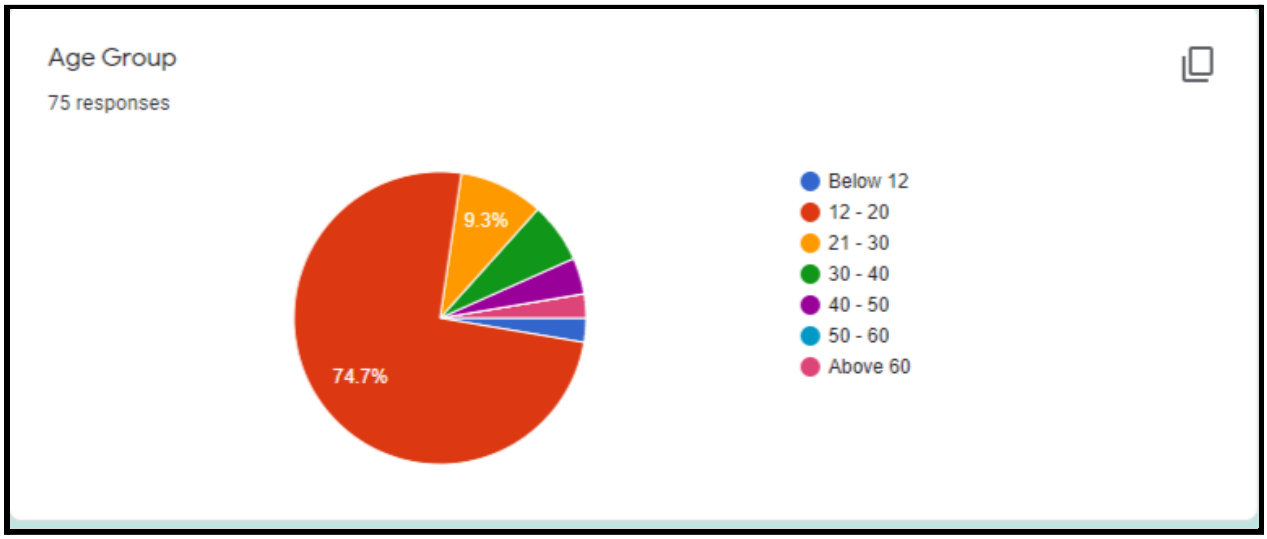
Current resources like the National Environmental Agency(NEA) website and its National Recycling Programme did not specifically target students but rather the general public. Thus, the programme was not useful to help students get motivated to recycle or gain more knowledge on this topic. Despite Singapore's recycling programmes to encourage the general public to recycle, Singapore's overall recycling rate has been sticking at about 60% in recent years. Hence, it implies that the initiatives could not even motivate Singaporeans to recycle, so obviously students cannot be bothered to do so. Therefore, there is a need for resources that will influence and encourage recycling for the public, especially students. Additional research also suggested that plastic sticks around in the environment for ages, threatening wildlife and spreading toxins, contributing to global warming. Currently, we are producing over 380 million tons of plastic every year and some reports indicate that up to 50% of that is for single use purposes - utilized for just a few moments, but on the planet for at least several hundred years. Furthermore, plastic is very cheap and highly affordable, thus it is used by many people all over the world.

3. Methodology:

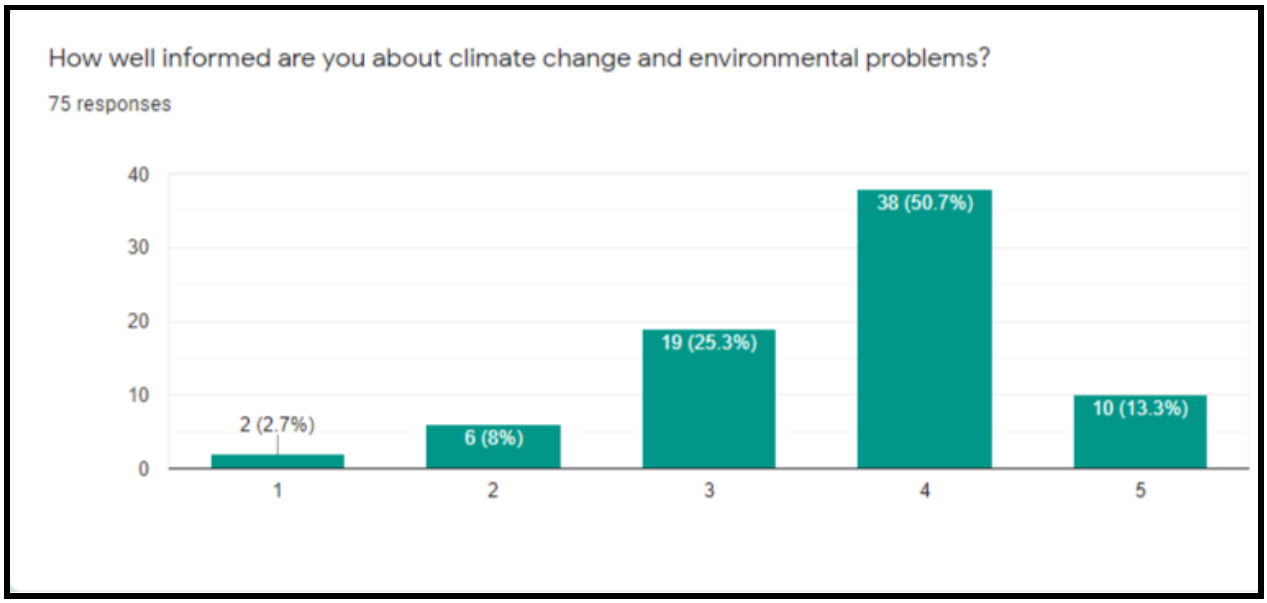
3.1 Needs Analysis

We conducted 2 surveys in total. The first survey was meant to be the baseline of our project, with it giving us a clear indicator of where the problem lies within the student population. The second survey then wrapped up the project, showing how our resource package could impact Hwa Chong Students if it was implemented in the future. The questions in the second survey were tailor made to fit the aims of our project and to further gather feedback to support the need for a resource package to be done for the Hwa Chong Students.

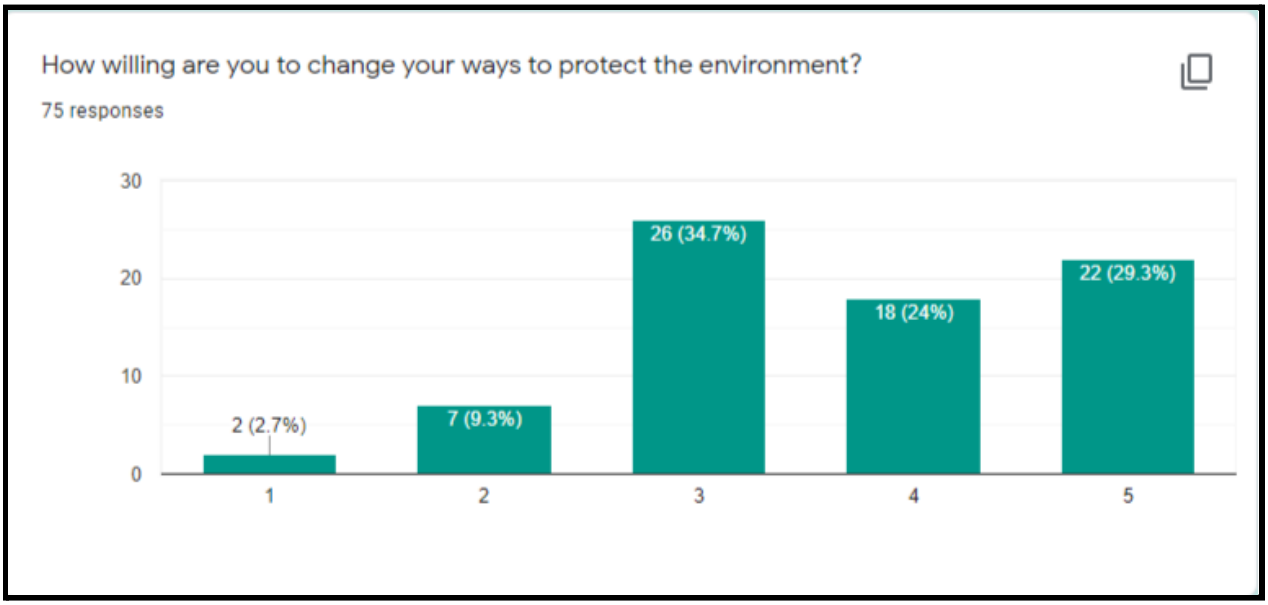
First Survey: 75 Respondents



As you can see from the pie chart, most of the respondents are in the 12-20 age group.

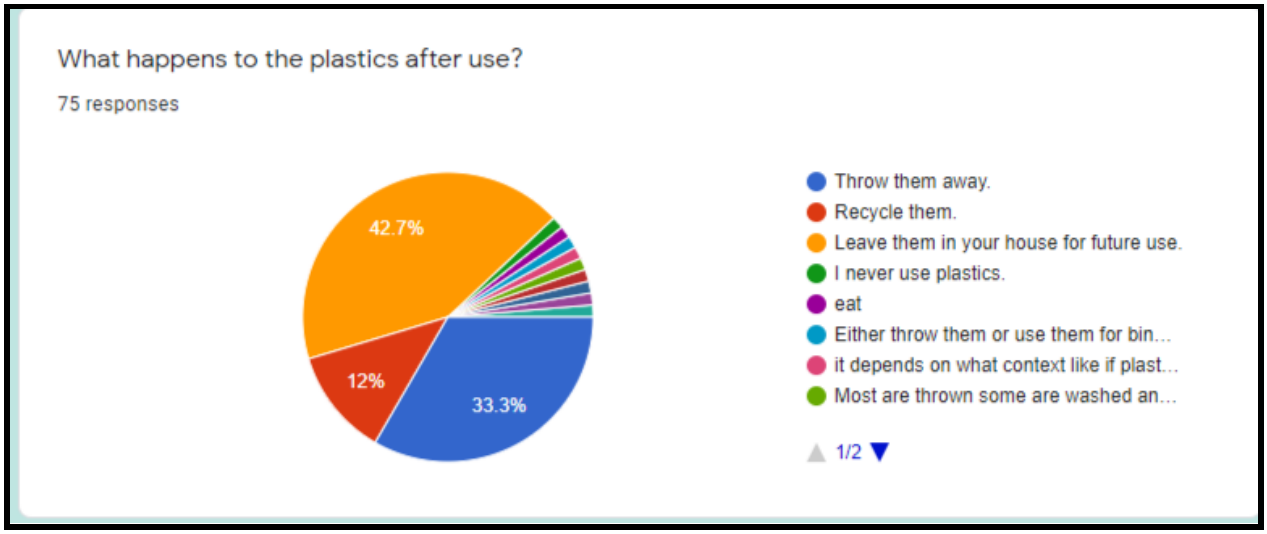


31% of the Students (31%) indicated that they were either not informed about climate change and environmental problems at all or did not know much about them.



From the graph, we can see that most of the respondents gave a 3 out of 5 rating on how willing they are to change their ways to protect the environment. This suggests that many people are rather reluctant to change their ways to save the environment due to inconvenience or personal habits. Thus, we would like to encourage people to change their mindsets towards protecting the environment.

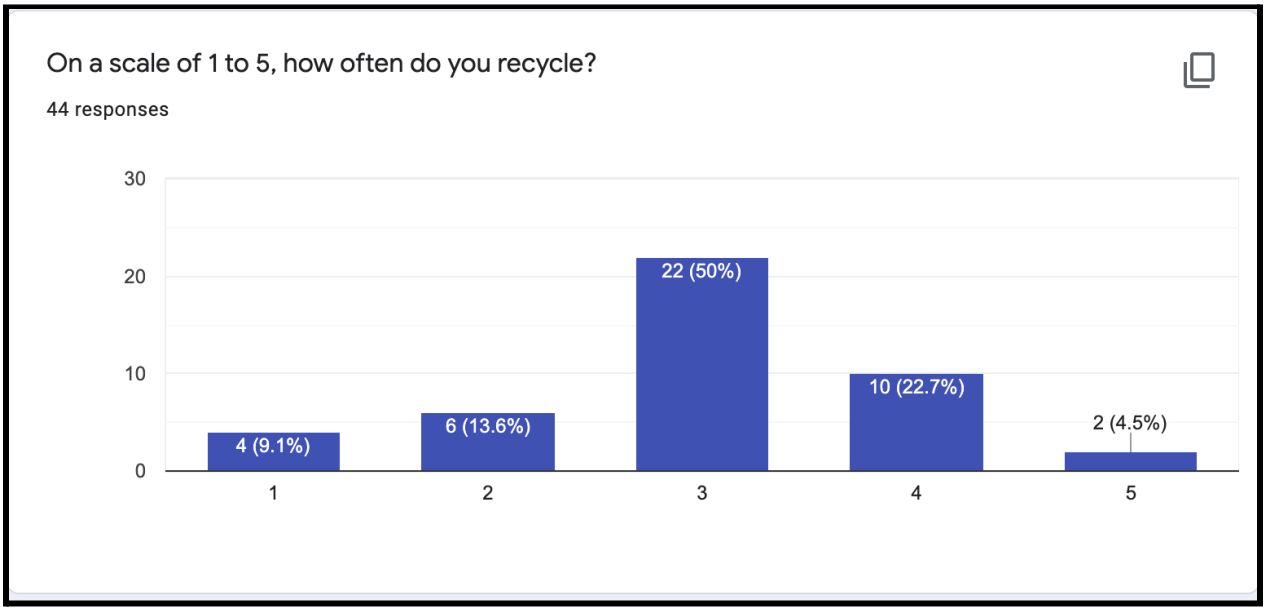
42.7% of the respondents claimed that they will keep the plastics inside their houses for



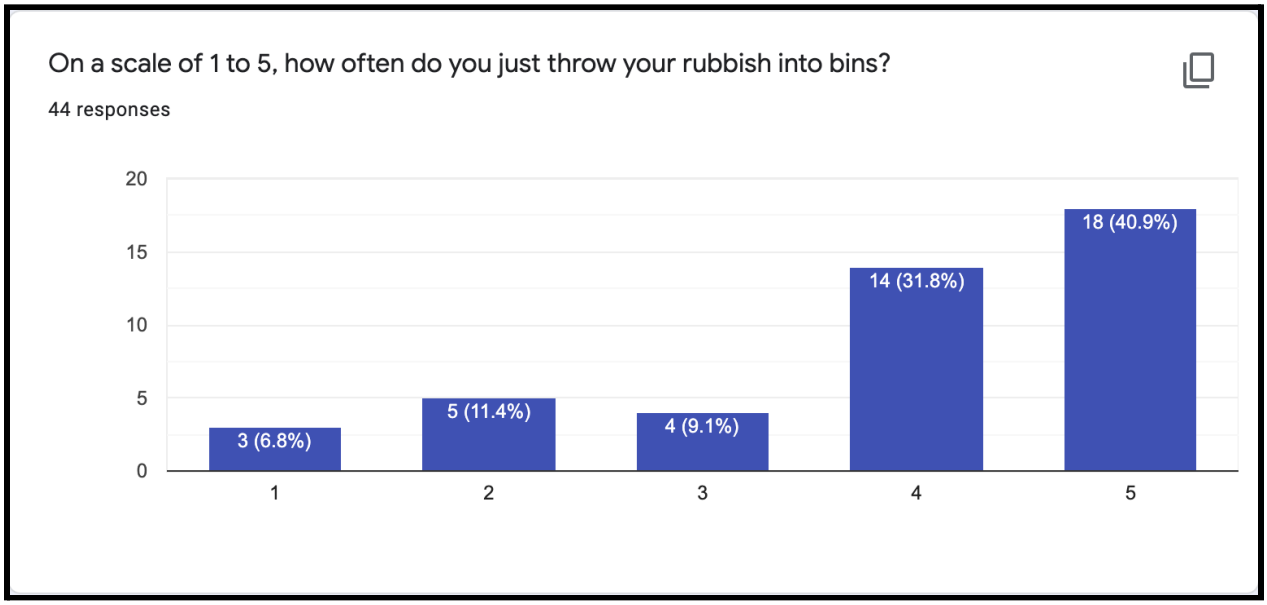
future use, indicating some sense of environmental friendliness. However, what we do not know is how they will discard the plastics after use.

Second Survey: 44 Responses

In General

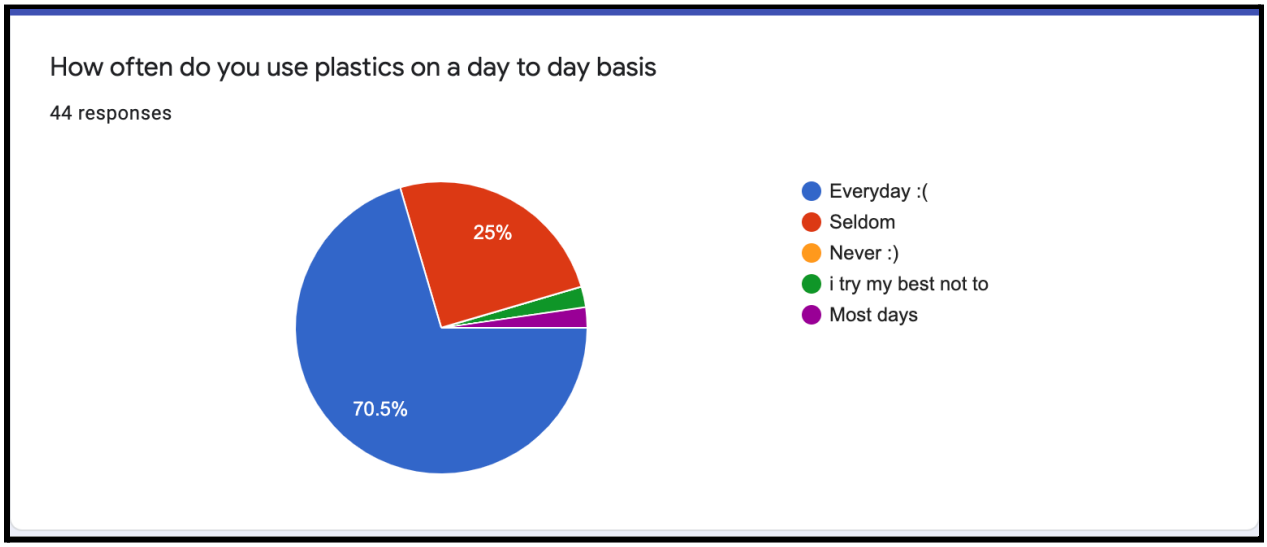


From this statistic, you can see that about 50% of the respondents do not have the habit of recycling, something that is very worrying in this day and age.

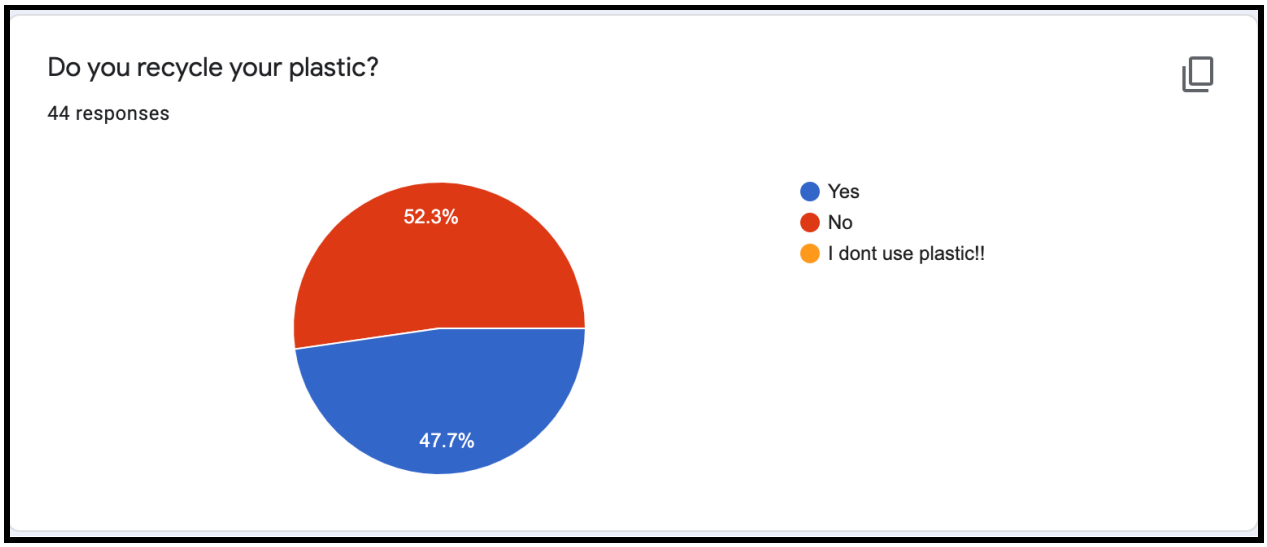


The previous evidence was backed up with this, where 40.9% of the respondents indicated that they would just throw their rubbish into rubbish bins instead of recycling bins.

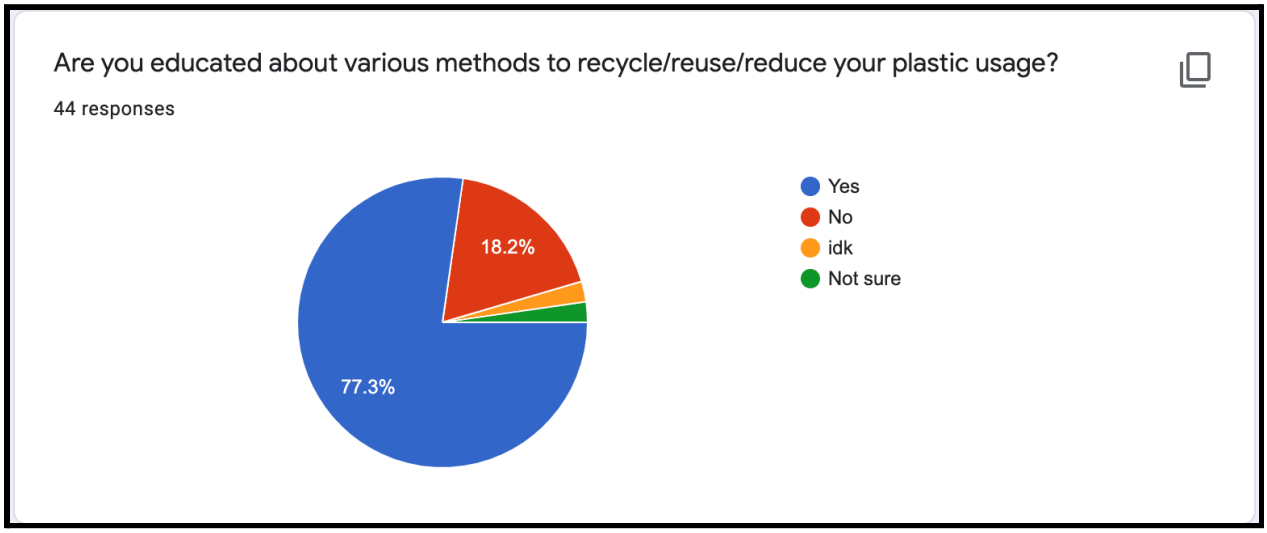
Plastic



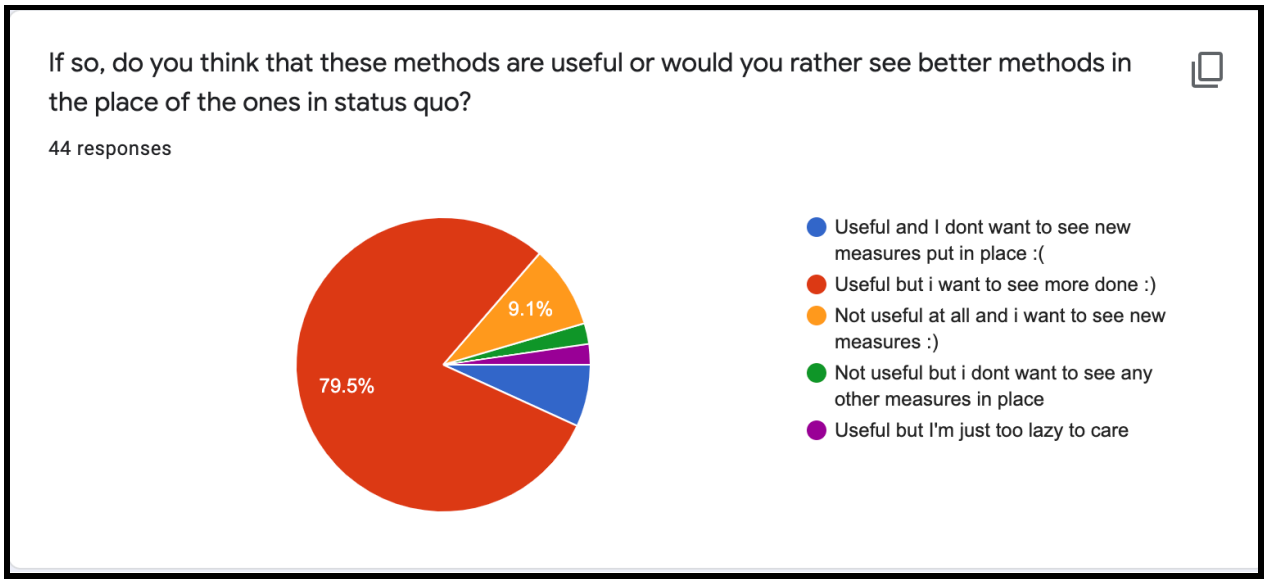
A whopping 70.5% of the respondents use plastics on a daily basis, indicating how much the problem is magnified currently



This pie chart shows how much plastic waste is generated as a result of people not recycling their plastic, with 52.3% not doing so.

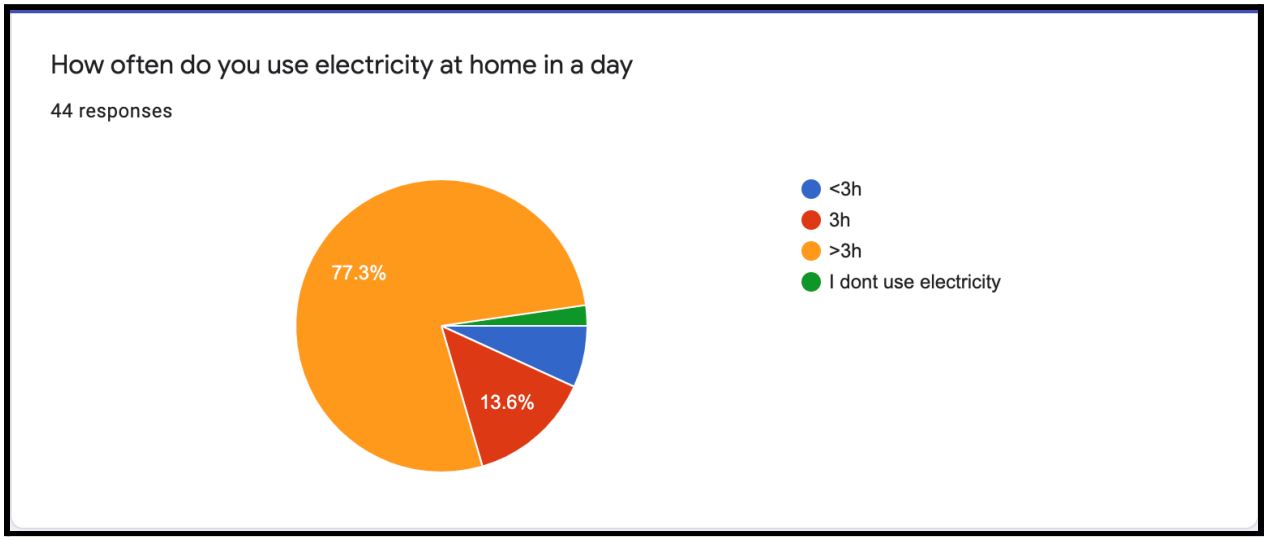


This question asked students as to whether they were educated about ways to reduce plastics, of which 77.3% of them said they knew.

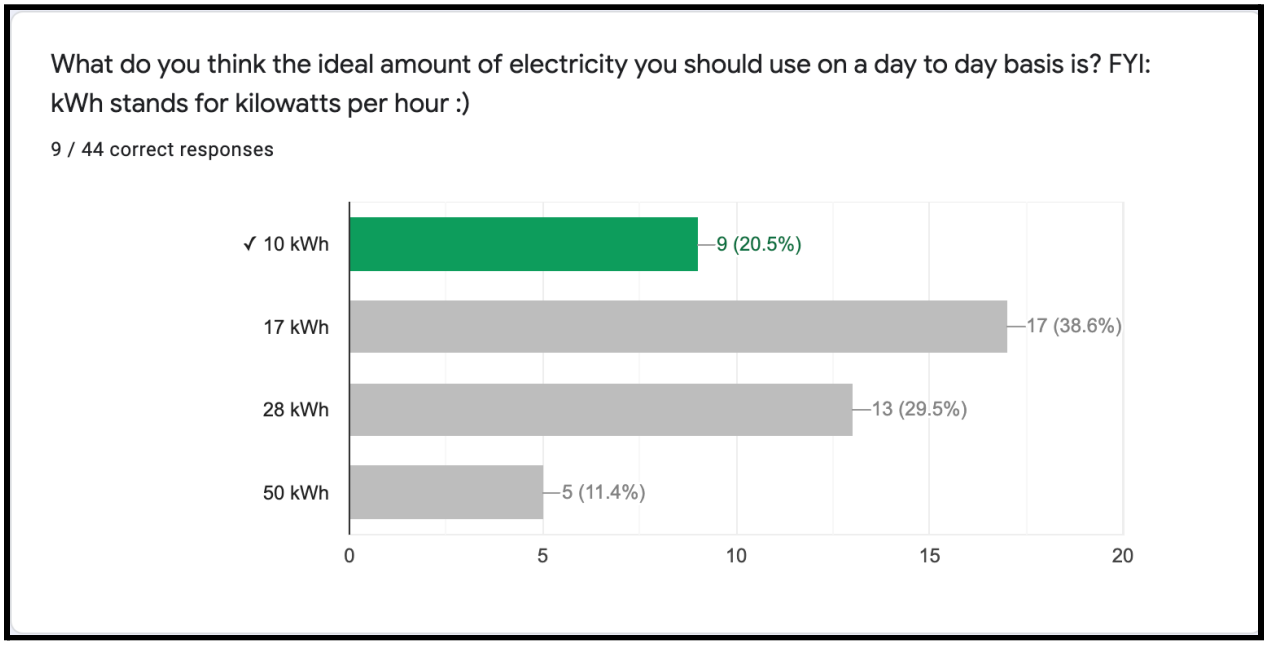


However, this question was an indicator of how much people wanted to learn new ways to recycle plastic, of which 79.5% of students said they wanted to see more methods employed.

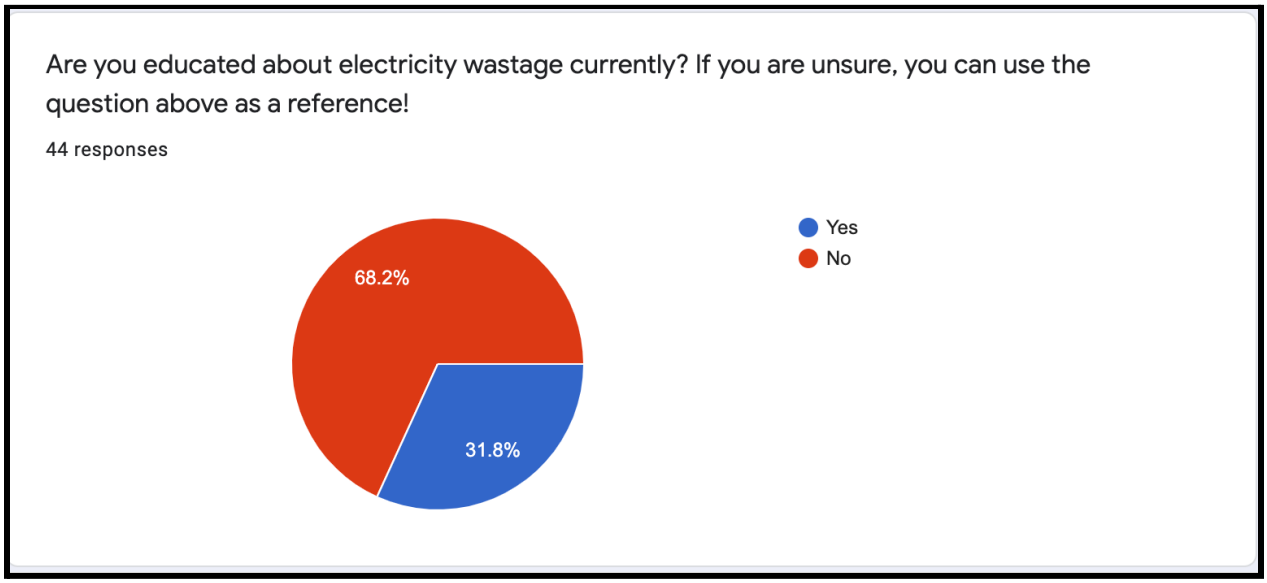
Electricity



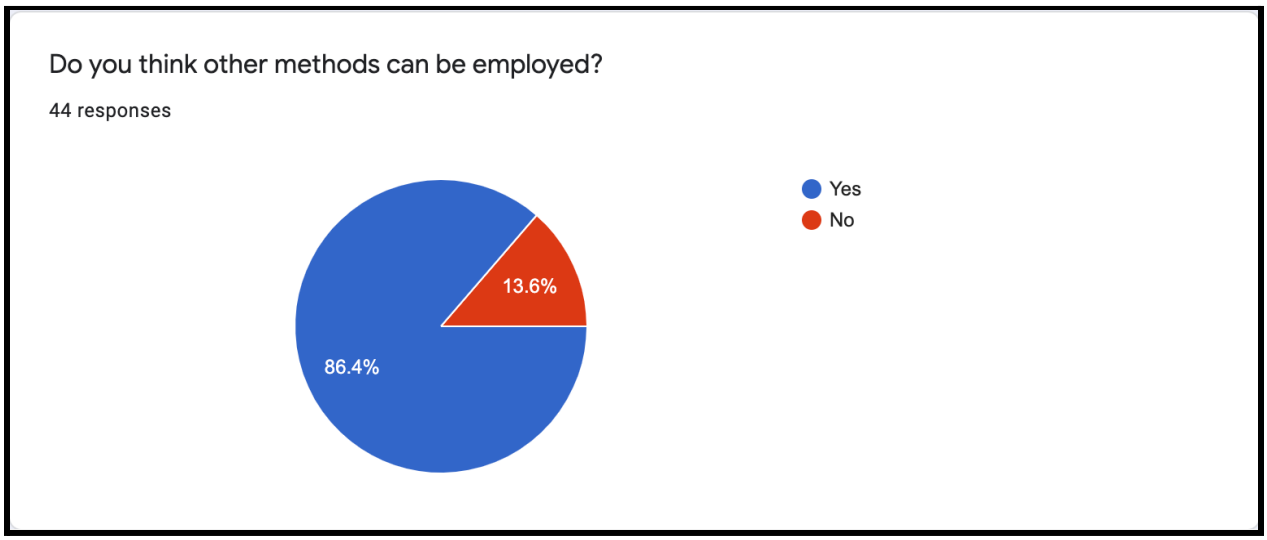
From this, we can tell that about 77.3% of students use more than 3 hours of electricity at home.



This served as an indicator as to how many students knew the ideal amount of electricity they should use on a daily basis, with merely 20.5% of students getting this question correct.

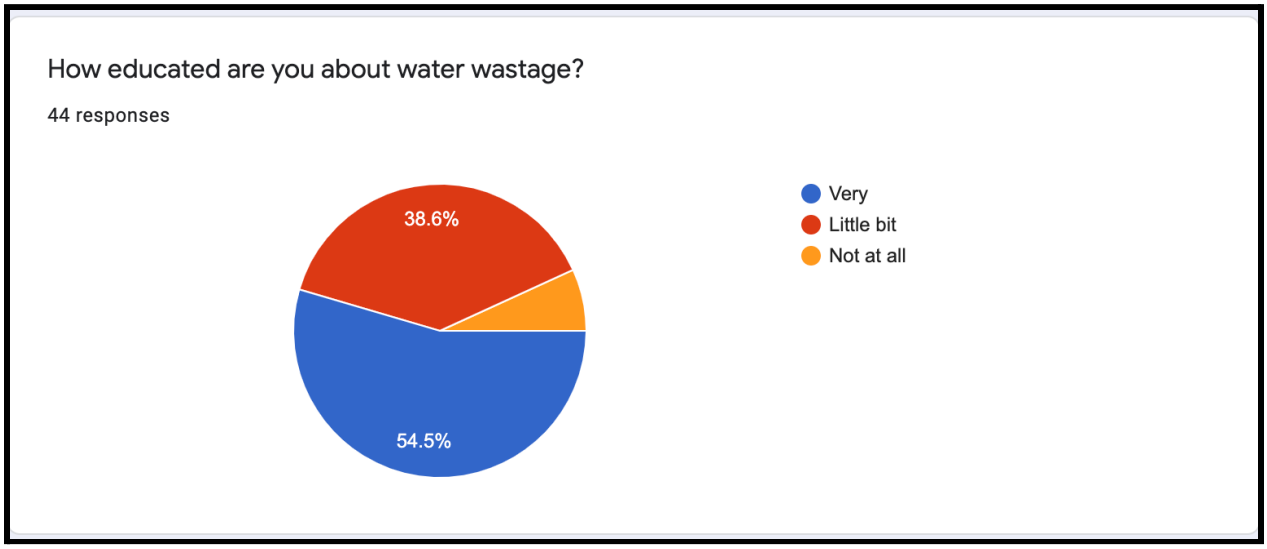


From this question, it was obvious that a large percentage of students did not know anything about electricity wastage, with 68.2% of them not educated about this problem.

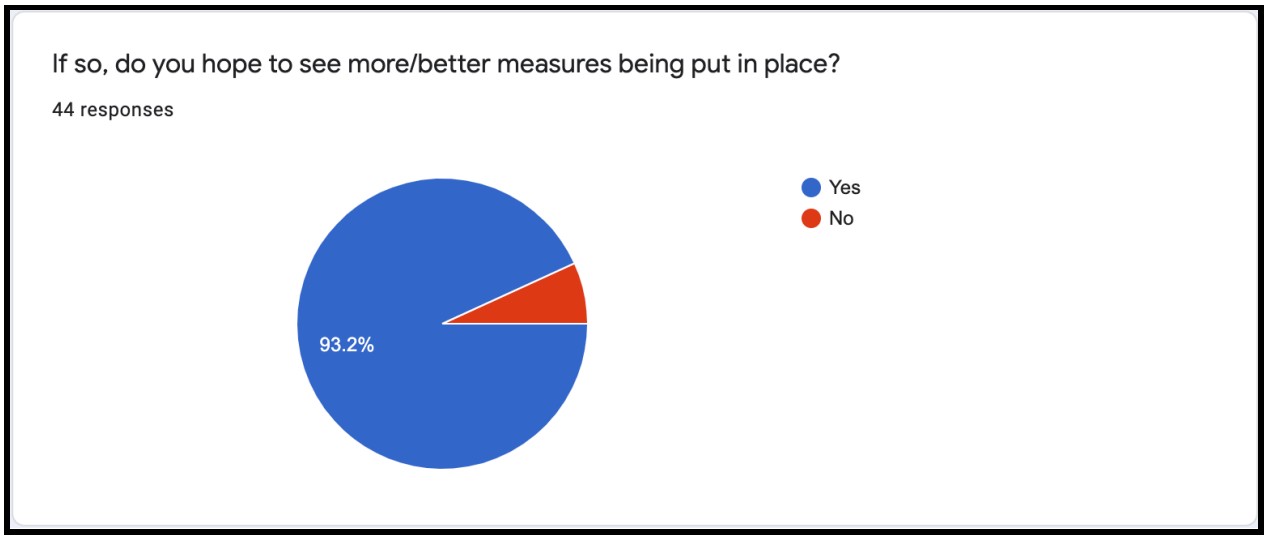


Even 86.4% of students believed that more methods needed to be added to solve this growing issue.

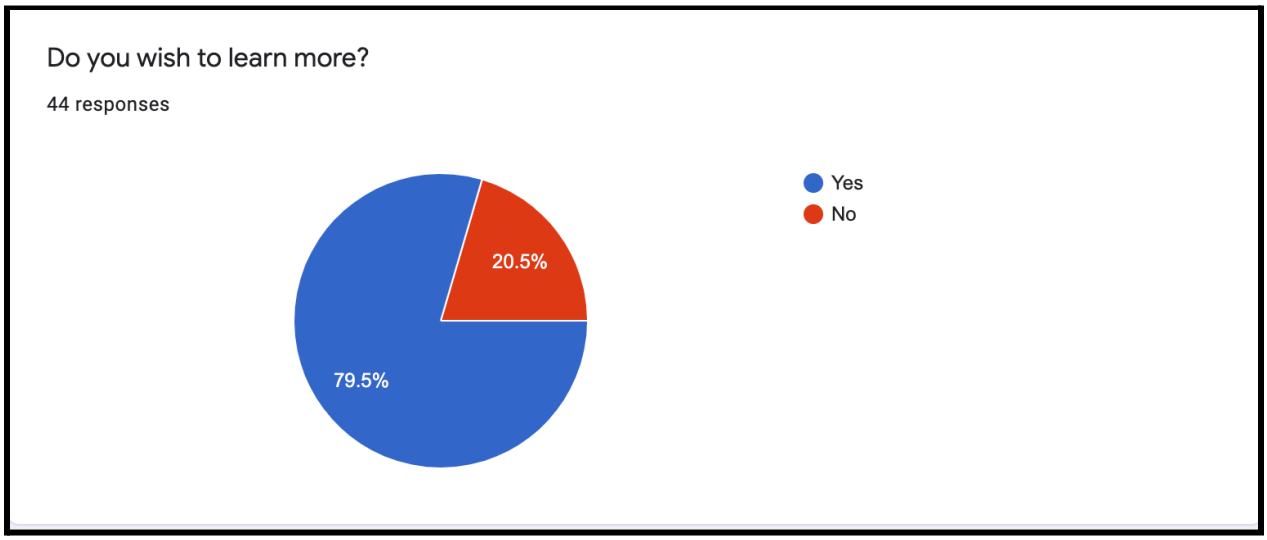
Water Wastage



Even though 54.5% of students said that they were educated about water wastage, a staggering 45.5% of students were not.



93.2% of the respondents hoped to see more measures being put in place, showing how much our tips and ways segment of our website could solve this issue.



79.5% of the respondents claimed that they wished to learn more about water wastage, something of which our project solves.

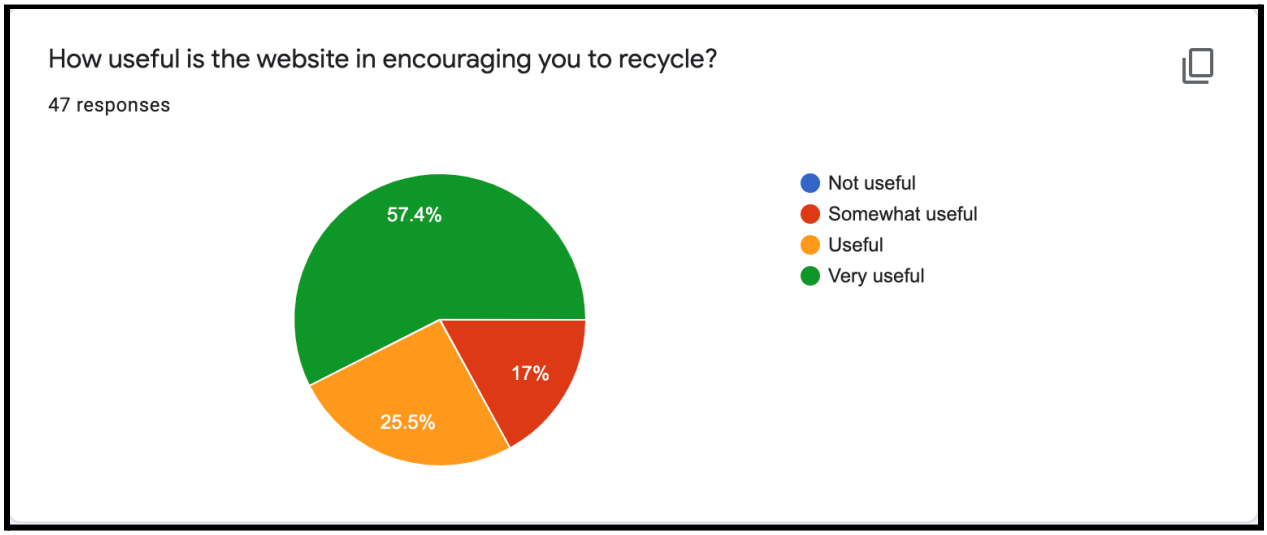
3.2 Development of Resources

Extensive research was done through reading various websites online, analysis of recycling statistics and how it can help reduce environmental pollution. With the information we collected, we created posters, memes in order to connect with the student population and entice them to reduce their plastic, water and electricity intake. Memes also allowed our notions to be etched in the memory of students as well as served as another method of spreading our message in a fun, interesting way. We also set up an instagram account to post these memes for students to see as well as tips, the link to the animation we created and the website.

3.3 Pilot Test

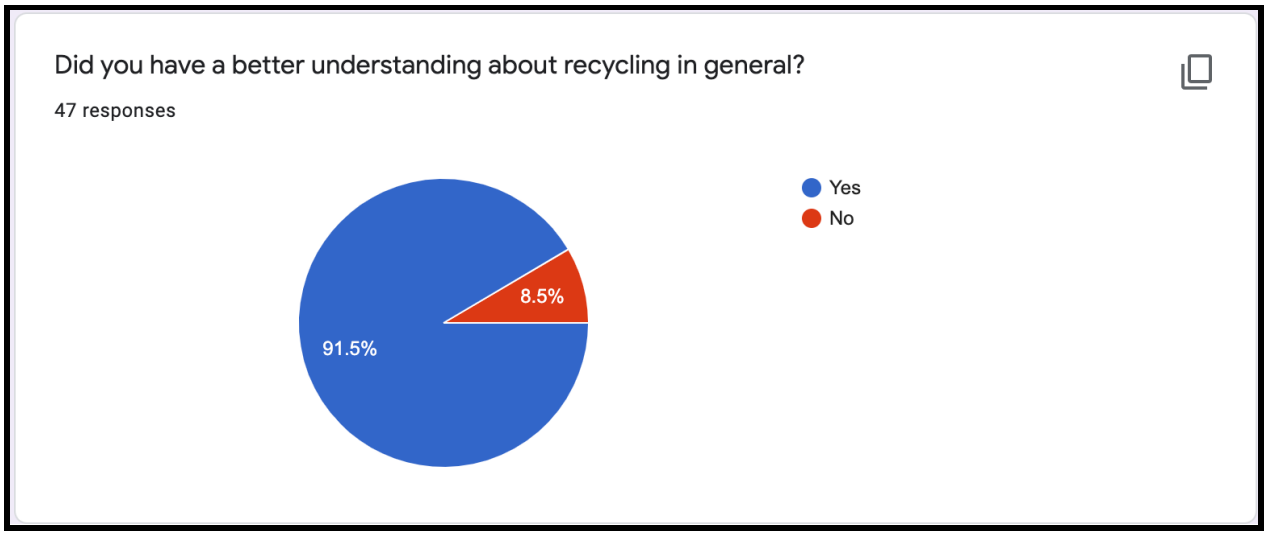
The results of our pilot test were collected through a google form, where we had 2 questions, of which students, after looking through our website, would answer questions to indicate how much our website had benefited them. This is the product:

Question: How useful is the website in encouraging you to recycle?



From this survey, 57.4% of the respondents said that our website was extremely useful in encouraging recycling, with only 17% saying that our website was “somewhat useful”.

Question: Did you have a better understanding about recycling in general?



A whopping 91.5% of students said that after reading our website that they understood about recycling in general.

Question: How we can improve our website

Its good

NIL

na

Make the website brighter

some games

information is not enough

Nothing else

lol

nth

You research covered a plethora of issues. However, something else that you could do (in the future) might be to extend your reach to fossil fuels.

However, for this suggestion, we decided, as a group, to start research into fossil fuels only if we decide to continue improving this project in the future.

> You could add better designs. Your could also have more tips (maybe 6 instead of 3) in order for us to understand more ways to save the environment. Other than that, the website should be fine

> Words could be cut down so as to ensure that we can read it easier. The meme page could also be revamped so that it looks better.

> You could add tabs, where students could click on buttons, bringing them to a specific page.

We managed to change this and implement the changes suggested

Question: Other feedback

Some additional feedback given by the respondents

> Memes were very funny
>
> 1 response

> This website helped me to gain a better understanding of plastic pollution
>
> 1 response

> The website was very informative
>
> 1 response

The website was very informative

1 response

NIL

1 response

Website provides a lot of useful infomation

1 response

Posters were easy to understand

1 response

The posters were very informative

1 response

The info given is all very clear and easy to understand

1 response

Tips provided were easy to understand and make sense

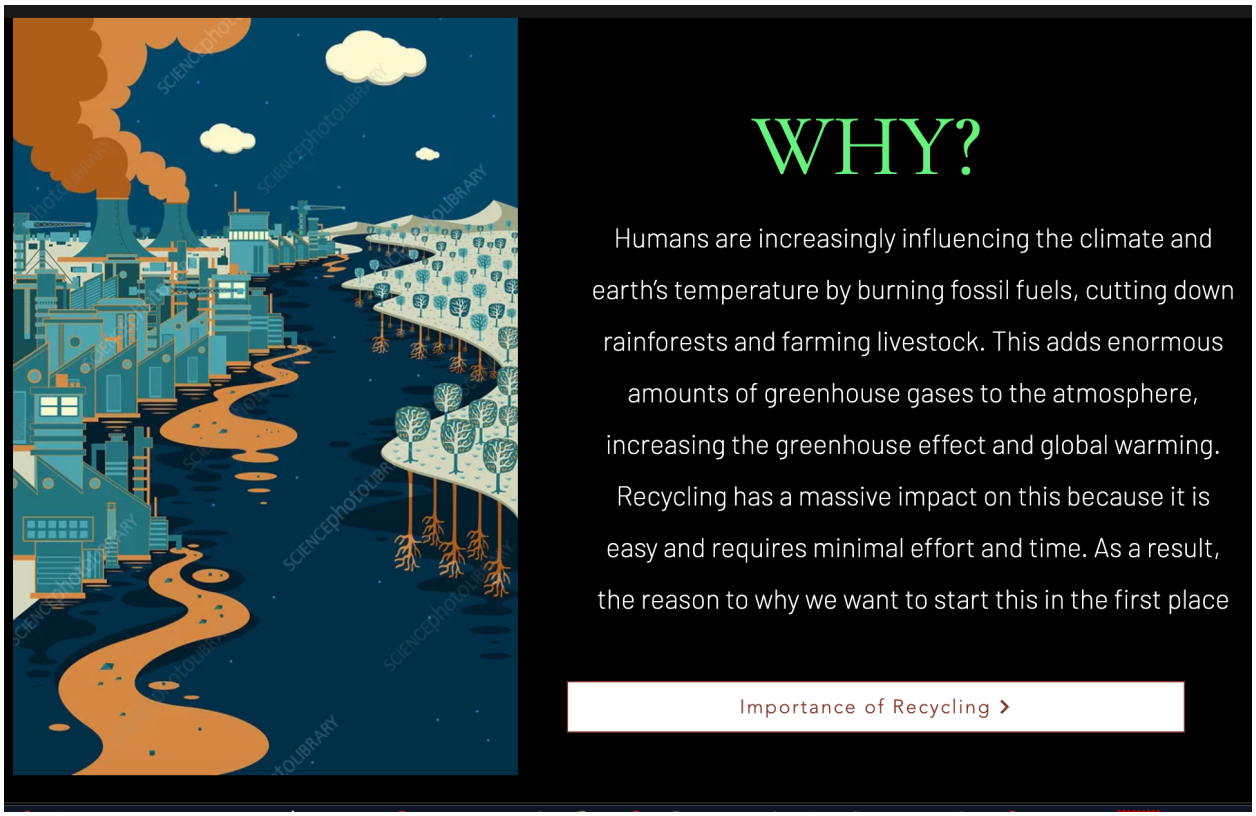
1 response

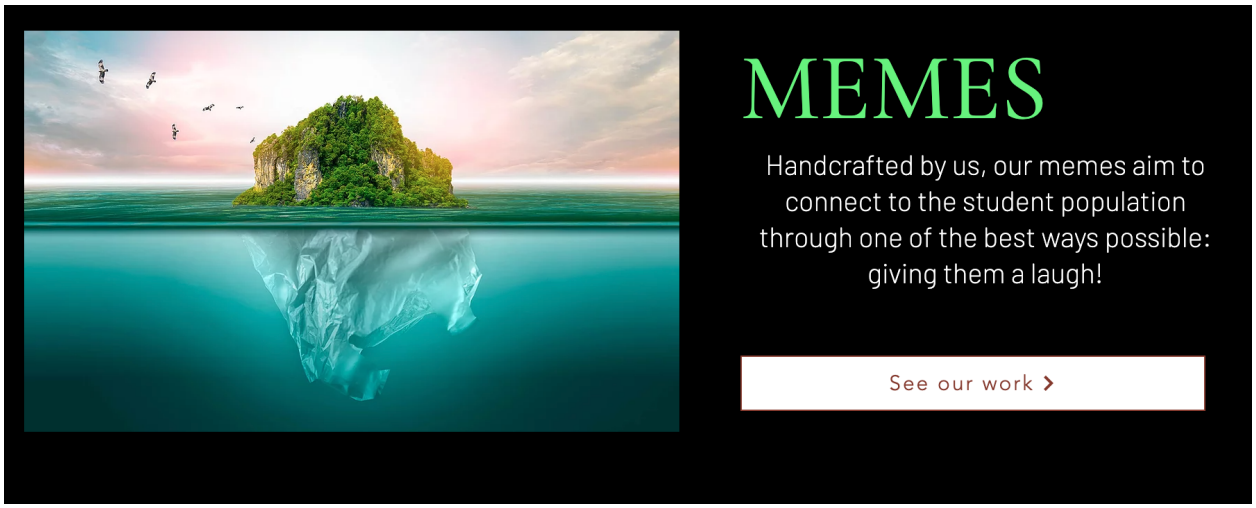
4. Outcome & Discussion:

4.1 Final outcome of project

The final outcome of the project is to reduce the plastic, electricity and water wastage in Hwa Chong students to ensure that the world can be better protected through our actions.

Main Page:

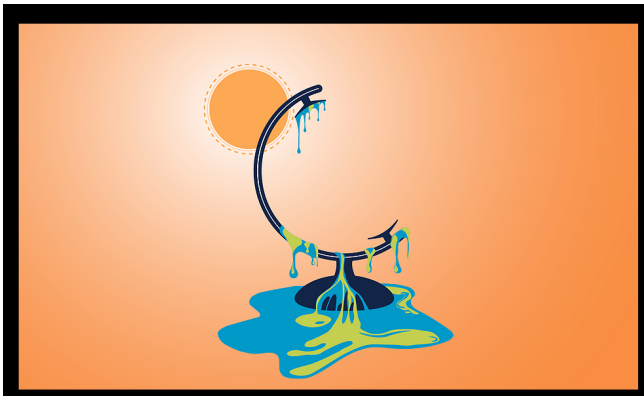




ANIMATION

The animation we made groups all the issues the world is facing into a short video. Through this, we hope that students will be able to understand the problems the world is facing and change their ways for the better

See our work >



POSTERS

Through posters that we designed, we captivated the attention of Hwa Chong students, drawing their attention to the multifaceted problems that the Earth is facing

See our work >

TIPS

These bite-size tips allow us to connect well with the student population and provide them ample resources in order for them to better protect the environment.

See our Tips >

Plastic Tips:

PLASTIC

TIP 1
Say NO to Plastic Straws!

Using paper straws might be painful to use, but plastic straws hurt the environment even more. If you're unable to stand the soggy gooeyness of the paper straw, use a metal straw instead.

TIP 2
Say NO to chips

Don't buy chips in plastic bags due to all the unnecessary packing that goes into those potato slices, you will not only be able to save the environment, but also yourself!

Instead, use glass or rubber containers and purchase your snacks individually without packaging.

TIP 3
Say NO to Plastic Bags

Some supermarkets will wrap each fruit or vegetable individually in plastic wrap. Instead of throwing it away, leave the plastic wrap with your grocer so that they can reuse it for other products.

TIP 4
Say NO to Plastic Shirt Hangers

Stop using plastics shirt hangers. Switch to metal, steel hangers instead. Steel hangers are 100% recyclable and not to mention, usually last longer than most flimsy plastic hangers.

TIP 5
Use reusable grocery bags

Whether you are going grocery shopping at the supermarket or going on a shopping spree at the mall, bring your own bag with you. Most reusable bags are only about 99 cents - a small investment to help out our planet.

TIP 6
Use your own bags to store food

For many households, the majority of plastic waste is generated in the kitchen. So one of the best ways to reduce the packaging waste madness is to bring your own bags and containers and stock up on bulk foods.

Water Tips:

WATER

TIP 1
Take Shorter Showers

A typical shower uses five to ten gallons of water a minute. Limit your showers to the time it takes to soap up, wash down and rise off.

TIP 2
DON'T Leave the Tap Running

Before brushing, wet your brush and fill a glass for rinsing your mouth. Turning off the tap while brushing your teeth is also another great way to save water.

TIP 3
Wash only when there is a FULL Load

Your automatic washer uses 30 to 35 gallons per cycle. Therefore, using your automatic washing machine for full loads only helps you to greatly save water, as less water will be wasted due to using it many times for separate loads.

TIP 4

Use Low Flow Toilets

Install a dual flush or low flow toilet or put a conversion kit on your existing toilet.

This way, you can prevent wasting unnecessary water on flushing your toilet, and it will help save water and cut down on your water bills.

TIP 5

Use Low Flow Shower Heads

Use a low flow shower head and faucet aerators. Using a low flow shower head helps to reduce water usage, and can regulate the amount of water you use to shower to prevent unnecessary usage of water.

TIP 6

Watch out for Leaks

This includes small water drops dripping out of your tap. A small drip can waste 50 or more gallons of water a day. Thus it is important to be mindful of any running taps or leaks to prevent precious wter from being wasted.

Electricity Tips:

ELECTRICITY

TIP 1

Switch OFF your Power Outlets

Switching off your power outlets when not in use can help you to save electricity at home, and cut down your electricity bills.

TIP 2

Unplug your Devices once Fully Charged

After charging your phone/computer/any electronic device till it's fully charged, detach the charger.

Or, you could refrain from charging your phone at night as it will leech off your electricity.

TIP 3

Switch OFF your Heater

Turn off your heater immediately after bathing or wait for about 5 minutes after turning on the heater to turn on the water in order to conserve electricity and water.

Poster 1:

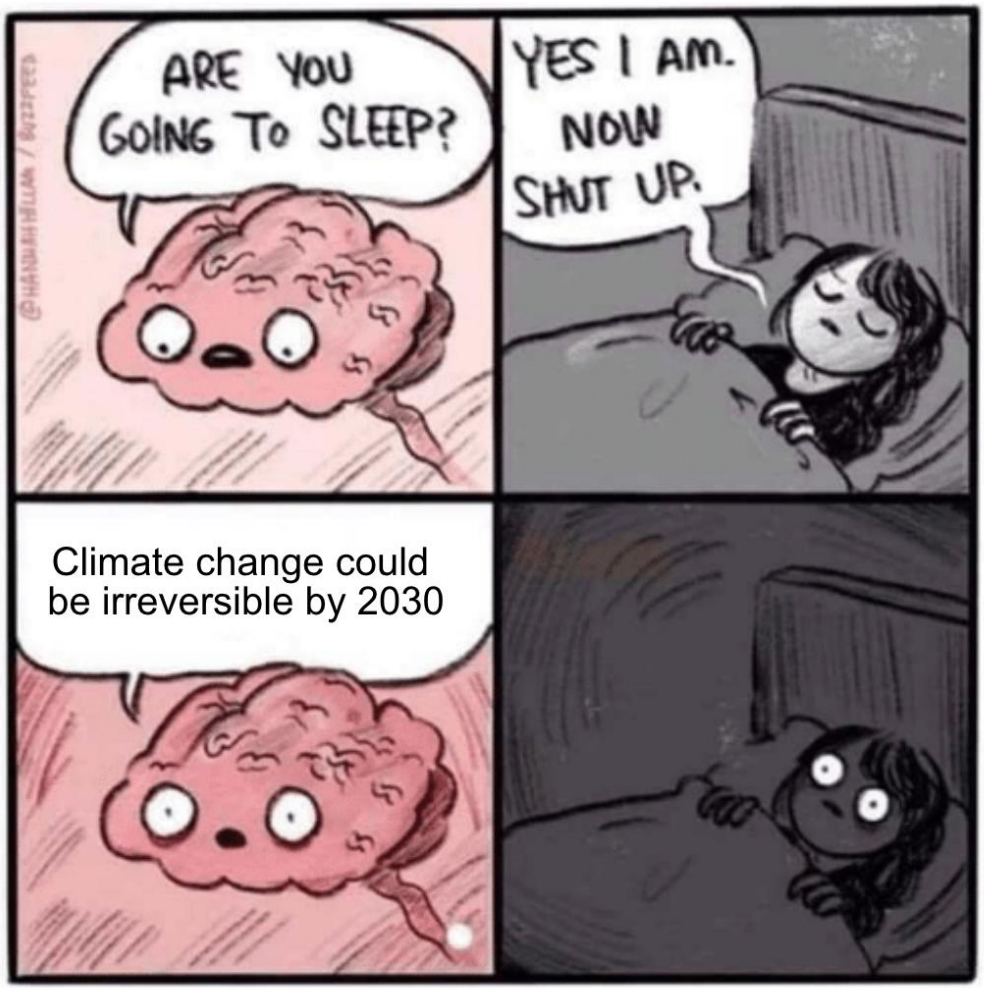

• SAVING THE PLANET •
WHAT DO WE DO?
WASHING CLOTHES
Use your washing machine only for full loads. Your automatic washer uses 30 to 35 gallons per cycle.
SHOWERS
A typical shower uses five to ten gallons of water every minute. Limit your shower time.
LIGHTS
Do not leave the lights or any electrical appliances on when not in use.
STRAWS
Don't be lazy. Bring around your own metal straw. Try to reduce using plastic straws, especially in fast food places.
REUSABLE BAGS
Always carry around a reusable bag. Reduce on the use of plastic bags.
FOOD CONTAINERS
When taking away food, bring your own reusable food containers. It may be inconvenient to wash, but it prevents a lot of plastic waste!

Poster 2:


SAY NO TO GLOBAL WARMING!
pw poster 2.png
Reduce plastic, electricty and water waste
• REUSE, REDUCE AND RECYCLE
• TURN OFF LIGHTS WHEN NOT IN USE
• TRY TO REDUCE THE USE OF PLASTIC BAGS AND BRING AROUND YOUR OWN RECYCLABLE BAG
FOLLOW US AT
@PROJECT_SALVAGE

Memes

We made around 15 memes, of which we posted on our instagram page to connect with the student population. Here is a sample



Animations:
Here is a photo of a scene in our animation.

Link to animation: https://app.animaker.com/animo/ZctvUdwbAtC8UHj8/

4.2 Limitations

But, there were some limitations when doing this project as the current covid-19 situation resulted in heightened measures being put in place. As a result, we were unable to meet up face to face to discuss the direction we were going in, hence making it difficult to complete the project. Additionally, we were unable to conduct interviews with Hwa Chong students and were forced to use google forms in order to convey our message or to ask for feedback from the student population. The problem with this was that students would often:

1) Pick the option that didn't require them to write a long paragraph backing their choice
2) Won't put in much effort to choose the points that best represent them.

4.3 Further Works

Possible further works include providing similar resources on the Internet to encourage people to save electricity and water. We could extend our reach to students in other schools in Singapore, people in Singapore in general or even people in other countries through social media apps like Reddit. This would ensure that the notion of recycling

would be spread to other people in other parts of the world, better achieving the aim of our project. Furthermore, we could improve our website such that we target more renewable resources, such as fossil fuels or rubbish in general, convincing people to reduce their intake of these resources through driving less cars or throwing away less rubbish, instead of the three-pronged attack we have against plastic, water and electricity.

5. Conclusion:

- **Everyone reflect (alphabetical order)**
- **Skills acquired and challenges encountered**

Darell

This year's project was more unique than the project I did last year. I learnt how to use different applications such as Animaker and Wix to create something magical. It was my first time creating a website and an animation, which I found to be extremely interesting. I'm glad I was able to pick up a few skills through this project. Our project this year is about saving the environment, which really made me realise how badly we are damaging our own planet. Through this project, I learned many tips and strategies on how we can save electricity, water and the use of plastic. I have been applying this knowledge in my everyday life. Now when I order food or buy groceries, I will bring around my own metal container and a recyclable bag. I hope through our project, many other people will also follow suit and also help in saving our planet.

Daryl

This project was definitely harder than the project I did last year, mainly because we had to design a whole new website from scratch and conduct a lot of research in order to bring our point across. Additionally, with the onslaught of COVID-19, we were unable to meet up face to face and platforms like google meet and zoom were ineffective for us to communicate on our ideas as well as the direction our project was going for. By the time the deadline drew closer, it had already started to get extremely difficult as we hadn't even time to conduct surveys and to finish a website. Nevertheless, we still managed to pull through and complete our website. Some skills I picked up were how to use apps such as "meme maker" to make the memes we used in the project as well as "wix.com" to make the website.

Ethan

Project Salvage, being an environmental project, really helped me to be more aware about my environment as well as the problems it currently faces. However, Project Salvage also had its fair share of challenges. Firstly, we had to design our very own website using “Wix.com”. I had no past experiences creating and designing my own website, so this was my very first time doing so. Secondly, due to the COVID-19 Safe Management Measures, we could not meet up face to face in school as a group with our project mentor, and that caused a little confusion in our project group when some members were unavailable to attend meetings and thus had missed out on key information. However, we persevered as a group to finish this project. In the process of doing this project, I felt that I had gained a better understanding of my environment, as well as given me a new set of skills in creating and designing websites. Overall, I think our project was a success.

Yun Tao

Project Salvage has allowed me to gain more knowledge on the topic of recycling and how it can effectively reduce environmental pollution. Some challenges that my group encountered were that we could not communicate well with one another because of the heightened covid-19 measures so we could not meet face to face. Instead, we had to use online meeting platforms such as Zoom and Google Meet to deliver our ideas to one another. This proved to be less efficient as we were all at home and busy with other personal matters so it was hard to put all our focus onto this project. Nevertheless, we managed to overcome this problem by allocating different roles to each group member so that we would know exactly what each of us had to do. In a nutshell, this project had its ups and downs but we definitely learned important values from this project such as teamwork and how to communicate with the group members.

6. References:

Research

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