

Math Talent Quest

Why all the waste?

Big Question: How much landfill waste and recycled waste does my family use compared to the average family in Victoria?

Introduction

Aim/Learning intention:

This project is about how much landfill and recycled waste my family uses compared to the average family in Victoria. The aim of this project is to investigate how my family deals with recycled waste and landfill waste. I hope that the results will help my family improve on how we manage waste and be more sustainable.

In this project I will be measuring weights, using data analysis and data collection.

Prediction of results:

I think my family is producing more landfill than the average household in Victoria because my family does a lot of home cooking and we produce a lot of scraps which contributes to the landfill waste. Also I believe my family uses a bit less recycle than an average household in Victoria because we use less canned and bottled products.

Rationale:

I chose this topic because I want to learn about how my family is doing with our waste management compared to the rest of Victoria.

Plan of the investigation:

I am going to collect landfill waste by weighing the bin bag of landfill before we put it in the big bin. For the recycled waste, I am going to separate the recycle into three groups: Paper/cardboard, plastics and glass/metal. Glass and metal are combined because we do not use much glass or metal. I will also involve my family so that I can be informed when the recycled items are about to be taken to the recycle bin so I can weigh them. I will also make a sign that tells my family where to put the different recyclable items in the correct bags. The date the items are weighed will be recorded. All weight will be recorded in kilograms.

I will be collecting Victoria's data by researching government websites for landfill and recycled waste in the past years. I will also investigate the average number of families in Victoria for past years to get the average waste (recycled and landfill) per family.

I will use data collection, data analysis and numbers. Multiplication, long division, measurement where grams were converted to kilograms is also going to be used.

The data collection will help me get all the data I need and data analysis will help me compare them.

Results

Table 1

Recycled Waste in Kilograms in my household between 16th July – 5th August, 2020

Date	Paper/Cardboard (kg)	Plastics (kg)	Glass and Metal (kg)
16/07/20	1.941	0	0
18/07/20	0.021	0.157	0
20/07/20	0.188	0.110	0
22/07/20	0.322	0.195	0.222
24/07/20	0.278	0.127	0.272
27/07/20	1.799	0.055	0.254
03/07/20	0.778	0.598	0.308
04/08/20	0.004	0.017	0
	Total (kg): 5.331	Total (kg): 1.259	Total (kg): 1.056
Total (kg) : 7.646			

Total Waste used by my Family in 3 Weeks in Percentages

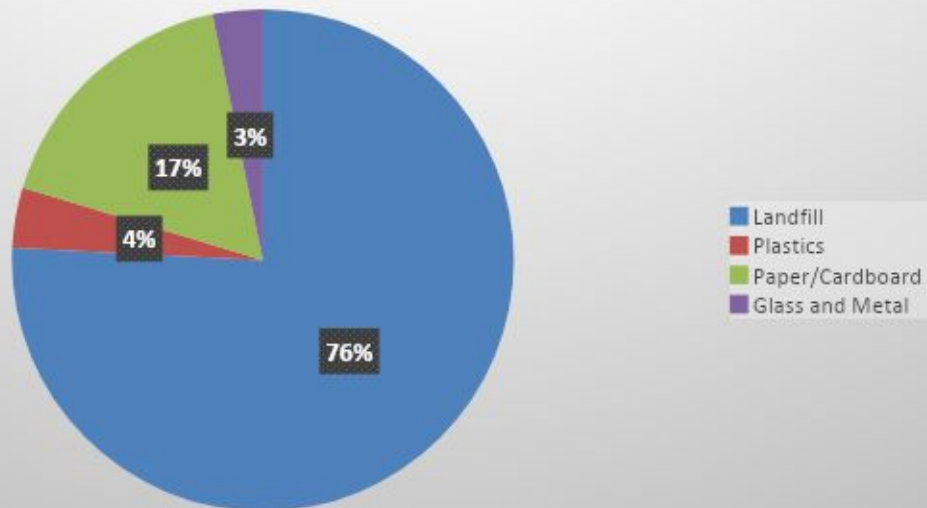


Table 2

Landfill Waste in Kilograms in my household between

16th July – 5th August, 2020

Date	Landfill (kg)
16/07/20	4.335
22/07/20	4.6
30/07/20	4.1
01/08/20	4.236
04/08/20	6.241
Total (kg)	23.512

Table 3

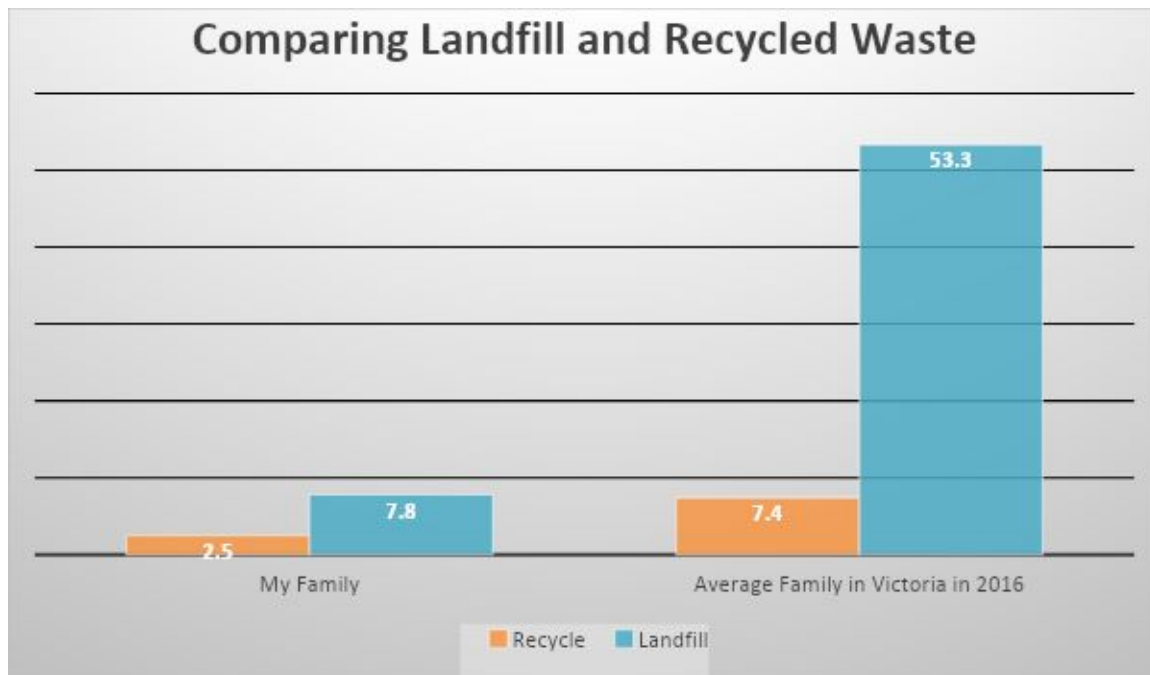
Waste in Kilograms for my Family

	Total Usage for 3 Weeks	Weekly
Recycled Waste	7.646	2.548
Landfill Waste	23.512	7.837

Table 4

Waste in Kilograms for Victoria in 2016

	Yearly	Monthly	Weekly	Family usage per Week
Recycled Waste	591,103,000	49,258,583	11,367,365	7.4
Landfill Waste	4,250,000,000	354,166,666	81,730,769	53.3



Discussion of Results

According to the 2016 population census, the total number of families/households was 1,532,077.

In 2016, 4.25 million tonnes of waste were sent to landfill in Victoria according to the Victorian Recycling Industry Annual Report. Also in the same year, the amount of recyclables collected by local government via household kerbside collection services was 591,103 tonnes in total.

Comparing the average weekly usage for my household with the average family usage in Victoria in Table 3 and 4, we produced 2.548kg of recycled waste while the average family in Victoria used 7.4kg of recycled waste. This means that my family used 4.9kg less recycled waste which was the same as my predictions that said we would use less recycled waste.

For the landfill waste we used 7.837kg while the average family in Victoria used 53.3kg of landfill waste per week in 2016.

My data about Victoria is based on the year 2016. The population may have increased between 2016 and 2020. In 2016 people might have been using more recycled items and producing more landfill waste.

Conclusion

This project revealed that my family uses less landfill waste than the average family in Victoria in 2016 and that we use less recycled waste than an average family in Victoria. I believe that the aim was achieved because my family members are more careful of what goes into the recycle and landfill waste.

The result for the landfill is not the as predicted. The prediction was that my family uses around the same amount of landfill waste while the prediction for the recycle was accurate. I think the results might have been affected by the population. The number of families living in Victoria in 2020 is different from the number of families in 2016.

Reflection

This project has improved my knowledge of long division, decimal points, multiplication, data analysis, metric conversion and looking up data through research.

Bibliography and Acknowledgements:

- <https://www.sustainability.vic.gov.au/-/media/SV/Publications/Government/Victorian-waste-data-portal/Victorian-Recycling-Industry-Annual-Report/Victorian-Recycling-Industry-Annual-Report-2016-17.pdf>
- <https://www.sustainability.vic.gov.au/Government/Victorian-Waste-data-portal/Victorian-Local-Government-Annual-Waste-Services-report/Recycling-collection>
- https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/2?opendocument

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