

# MARINE LITTER PROJECT

## HOUSEHOLD WASTE AUDIT ACTIVITY



Litter and waste is a significant threat to marine environments worldwide, with an estimated 4 - 12 million metric tons of plastic entering our oceans annually.

Fortunately, much of this waste is avoidable! The proper disposal of household waste can make a big difference. Simple strategies in waste disposal can reduce our footprint, and ensure we are all minimising the amount of waste ending up in landfill unnecessarily.

A household waste audit is a great way to learn about the waste you are creating and minimise avoidable waste!

### HOW DO I PREPARE FOR A HOUSEHOLD WASTE AUDIT?

- 1** Undertaking a household waste audit is incredibly easy! First off, you will need a few things to get you started. This equipment will help you collect, measure and record the waste you are collecting.



Pen and paper



Containers to collect your litter



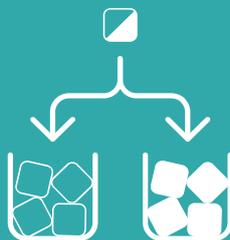
Scales to weigh your litter (optional)



**2**

Following this, label your containers to effectively collect and sort your waste:

- General waste (rubbish bin)
- Paper recycling
- Plastic recycling
- Soft plastic recycling (any plastic you can crinkle up in your hands)
- Metal recycling (aluminium foil, soft drink cans, etc)
- Glass recycling
- Compost (food scraps)



**3**

Set a timeline for your waste audit, and how long you will collect data for. To get a good understanding of your household waste, you will need to collect data from an extended period of time. One day won't be enough, but a week or month will give you a good amount of information as it will allow you to see patterns in the waste you create.



# READY TO START?



1

## STEP 1:

Organise your waste tubs ready to collect your waste. Some great ideas for containers would be ice-cream tubs, or plastic Tupperware containers. As you create waste, deposit it into the correct collection tub.

A few tips for collecting your waste include:

- You can use your normal rubbish bin to collect general waste
- Make sure to rinse any recycling which may have food contamination
- It is handy to keep a lid on your compost tub
- Your family might like to be involved in this activity as well!

2

## STEP 2:

At the end of each day, count the waste in each container. The attached data collection sheet will assist with recording your daily waste data. Once you have recorded all data, dispose of your waste into the correct household council bins. It is important you are disposing of and emptying your collection containers at the end of each day. This process is then repeated each day for the duration of your audit.

You might also like to weigh your waste at the end of each day. For this, you will need to use your scales (make sure you zero your scales to include the weight of the tub!) This is optional and not required for the audit, but can be another indicator used in your data.

3

## STEP 3:

Once your audit is completed, record your data into the digital data sheet. This will allow you to graph your data, and see trends in your household waste! This will be the focus of MLP session 2.

4

## STEP 4:

Now that you have identified your household waste, you can identify areas of excess waste and implement strategies to minimise this. After implementing these strategies, repeat the audit process. This will inform you of the effectiveness of your sustainability initiatives!

### Some simple household litter reduction strategies include:

- Stop using single-use plastics! Items such as plastic straws, plastic water bottles, and plastic plates and cutlery create unnecessary waste that can be avoided in the home
- Use reusable shopping bags, but also use reusable produce bags
- 65% of food waste is avoidable. Make sure you are only purchasing fresh food that you will use. Planning your weekly menu is a great way to purchase more effectively and minimise waste
- Dispose of food scraps straight into the compost
- If you have leftovers, use reusable containers
- Instead of cling wrap, you can use beeswax wraps. You can even make your own!
- A backyard compost bin is a way to return your waste to the environment. A compost bin can be purchased from your local hardware store.
- Polystyrene is a common single-use material that unfortunately cannot be recycled, but that break apart very easily and can disperse into our waterways! Try to use reusable containers or coffee cups instead. If you need to dispose of polystyrene, contact your local council to see if they have a polystyrene recycling program instead of going to landfill.
- In the modern age, e-waste is becoming increasingly common in landfill and litter. However, e-waste shouldn't be thrown away! Your e-waste contains materials that can be recycled and repurposed when disposed of properly. Computers, mobile phones, televisions and batteries are all considered e-waste. To discover where to drop your e-waste for recycling, contact your local council for the nearest drop-off location.

### Some great resources to help you get started on your sustainability journey!

<https://www.sustainability.vic.gov.au/campaigns/war-on-waste>

<https://www.recycling.vic.gov.au/help-with-your-recycling/top-5-things-to-keep-out-of-your-recycling-bin>

<https://www.marinemammal.org.au/sustainable-steps>



# HOW TO PROCESS YOUR HOUSEHOLD WASTE AUDIT DATA!

Now that data has been collected from the Household Waste Audit, we then need to process the raw data so that we can analyse it to make interpretations and inferences. The best way to interpret data is through visualisation. The visualisation of data, in the form of graphs, allows us to understand the information we have collected and recognise trends and patterns. Different types of graphs are used for different types of data. This allows for information to be visualised and interpreted appropriately.

For the Household Litter Audit, the aim of this activity is to determine the amount of waste we are producing by its type, and determine the proportion of each type of waste. In this experiment, we are able to collect two different kinds of data: count data and continuous data (weight).

To create graphs using your Household Waste Audit data, please follow the below steps. (Please note: This document was created using Microsoft Excel for MacOS, and therefore the screenshots and excel interface may look slightly different if you are using a Windows operating system).

## STEP 1:

To begin, open your Household Waste Audit data sheet in Microsoft Excel. If you have collected data on paper, you will need to fill out the data spreadsheet into the Excel file.

MARINE MAMMAL FOUNDATION HOUSEHOLD LITTER AUDIT DATA COLLECTION SHEET																	
DAY	DATE	General Waste		Plastic recycling		Soft plastic		Paper recycling		Metal recycling		Food Waste		Glass Recycling		Total	
		Weight	Count	Weight	Count	Weight	Count	Weight	Count	Weight	Count	Weight	Count	Weight	Count	Weight	Count
Tuesday	31/3/20					0.05	1	0.2	1	0.4	3	0.1	2	0.7	1	1.45	8
Wednesday	1/4/20			0.2	1	0.05	1	0.9	6							1.15	8
Thursday	2/4/20					0.1	2			0.125	1	0.1	3	0.4	1	0.725	7
Friday	3/4/20	2.3	1	0.2	1	0.1	2	0.4	5		3	0.1	2			3.1	13
Saturday	4/4/20			0.2	1	0.35	7									0.55	8
Sunday	5/4/20			0.6	7	0.25	5			0.3	2					1.15	14
Monday	6/4/20	1.4	1	0.2	1	0.15	3			0.2	2					1.95	6
Total		3.7	2	1.4	11	1.05	21	1.5	12	1.025	11	0.3	7	1.1	2	10.075	64



## STEP 2:

Highlight the waste categories cells at the top of the table, and **copy** them.

**MARINE MAMMAL FOUNDATION**  
HOUSEHOLD LITTER AUDIT DATA COLLECTION SHEET

DAY	DATE	General Waste		Plastic recycling		Soft plastic		Paper recycling		Metal recycling		Food Waste		Glass Recycling	
		Weight	Count	Weight	Count	Weight	Count	Weight	Count	Weight	Count	Weight	Count	Weight	Count
Tuesday	31/3/20					0.05	1	0.2	1	0.4	3	0.1	2	0.7	1
Wednesday	1/4/20			0.2	1	0.05	1	0.9	6						
Thursday	2/4/20					0.1	2			0.125	1	0.1	3	0.4	1
Friday	3/4/20	2.3	1	0.2	1	0.1	2	0.4	5			3	0.1	2	
Saturday	4/4/20			0.2	1	0.35	7								
Sunday	5/4/20			0.6	7	0.25	5			0.3	2				
Monday	6/4/20	1.4	1	0.2	1	0.15	3			0.2	2				
<b>Total</b>		<b>3.7</b>	<b>2</b>	<b>1.4</b>	<b>11</b>	<b>1.05</b>	<b>21</b>	<b>1.5</b>	<b>12</b>	<b>1.025</b>	<b>11</b>	<b>0.3</b>	<b>7</b>	<b>1.1</b>	<b>2</b>

## STEP 3:

Select an empty cell underneath the table. Right-click on the mouse, select **paste special**, and then select **transpose**. This will paste the waste categories vertically top to bottom. Above and beside the pasted cells, create the headings "ITEM", "COUNT", and "WEIGHT".

**MARINE MAMMAL FOUNDATION**  
HOUSEHOLD LITTER AUDIT DATA COLLECTION SHEET

DAY	DATE	General Waste		Plastic recycling		Soft plastic		Paper recycling		Metal recycling		Food Waste		Glass Recycling		Total	
		Weight	Count	Weight	Count	Weight	Count	Weight	Count	Weight	Count	Weight	Count	Weight	Count	Weight	Count
Tuesday	31/3/20					0.05	1	0.2	1	0.4	3	0.1	2	0.7	1	1.45	8
Wednesday	1/4/20			0.2	1	0.05	1	0.9	6							1.15	8
Thursday	2/4/20					0.1	2			0.125	1	0.1	3	0.4	1	0.725	7
Friday	3/4/20	2.3	1	0.2	1	0.1	2	0.4	5			3	0.1	2		3.1	13
Saturday	4/4/20			0.2	1	0.35	7									0.55	8
Sunday	5/4/20			0.6	7	0.25	5			0.3	2					1.15	14
Monday	6/4/20	1.4	1	0.2	1	0.15	3			0.2	2					1.95	6
<b>Total</b>		<b>3.7</b>						<b>1.5</b>	<b>12</b>	<b>1.025</b>	<b>11</b>	<b>0.3</b>	<b>7</b>	<b>1.1</b>	<b>2</b>	<b>10.075</b>	<b>64</b>

The output should look like this!

ITEM	COUNT	WEIGHT
General Waste		
Plastic recycling		
Soft plastic		
Paper recycling		
Metal recycling		
Food Waste		
Glass Recycling		



### STEP 4:

Along the bottom row of the table in the "Totals" category, highlight and copy the count value for each waste item.

The screenshot shows an Excel spreadsheet titled "HOUSEHOLD LITTER AUDIT DATA COLLECTION SHEET" for the "MARINE MAMMAL FOUNDATION". The table has columns for "DAY", "DATE", "General Waste", "Plastic recycling", "Soft plastic", "Paper recycling", "Metal recycling", "Food Waste", "Glass Recycling", and "Daily Total". Each of these categories has sub-columns for "Weight" and "Count". The "Total" row at the bottom of the table shows the following values: General Waste (Weight: 3.7, Count: 2), Plastic recycling (Weight: 1.4, Count: 11), Soft plastic (Weight: 1.05, Count: 21), Paper recycling (Weight: 1.5, Count: 12), Metal recycling (Weight: 1.025, Count: 11), Food Waste (Weight: 0.3, Count: 7), Glass Recycling (Weight: 1.1, Count: 2), and Daily Total (Weight: 10.075, Count: 64). A context menu is open over the "Total" row, with "Copy" selected.

Under the new heading you have created "COUNT", select the top cell. Right click, select **paste special**, and select **paste special** again.

The screenshot shows the same Excel spreadsheet as above. A context menu is open over the "COUNT" column header in the "Daily Total" row. The "Paste Special" option is selected, and a sub-menu is open showing various options, including "Paste Special...".



A new window will pop up, allowing you to select the paste options. In this window, select **Values**, and select **Transpose**. Click **Okay** to close the Window.

AutoSave OFF Household waste audit data sheet draft

Home Insert Draw Page Layout Formulas Data Review View Tell me

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Conditional Formatting Format as Table Cell Styles Insert Delete Format

Sort & Filter Find & Select Ideas

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HOUSEHOLD LITTER AUDIT DATA COLLECTION SHEET

DAY	DATE	General Waste		Plastic recycling		Soft plastic		Paper recycling		Metal recycling		Food Waste		Glass Recycling		Daily Total	
		Weight	Count	Weight	Count	Weight	Count	Weight	Count	Weight	Count	Weight	Count	Weight	Count		
Tuesday	31/3/20					0.05	1	0.2	1	0.4	3	0.1	2	0.7	1	1.45	8
Wednesday	1/4/20			0.2	1	0.05	1	0.9	6							1.15	8
Thursday	2/4/20					0.1										0.725	7
Friday	3/4/20	2.3	1	0.2	1	0.1										3.1	13
Saturday	4/4/20			0.2	1	0.35										0.55	8
Sunday	5/4/20			0.6	7	0.25										1.15	14
Monday	6/4/20	1.4	1	0.2	1	0.15										1.95	6
Total		3.7	2	1.4	11	1.05										10.075	64

ITEM COUNT

General Waste

Plastic recycling

Soft plastic

Paper recycling

Metal recycling

Food Waste

Glass Recycling

Paste Special

Paste

All

Formulas

Values

Formats

Comments

Validation

All using source theme

All except borders

Column widths

Formula and number formats

Values and number formats

All, merge conditional formats

Operation

None

Add

Subtract

Multiply

Divide

Skip Blanks

Transpose

Paste Link Cancel OK

Select destination and press ENTER or choose Paste

Following this, your count data should be correctly pasted vertically into your new table. Repeat STEP 4 for the weight data (if applicable).

AutoSave OFF Household waste audit data sheet draft

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Conditional Formatting Format as Table Cell Styles Insert Delete Format

Sort & Filter Find & Select Ideas

A18 X fx

HOUSEHOLD LITTER AUDIT DATA COLLECTION SHEET

DAY	DATE	General Waste		Plastic recycling		Soft plastic		Paper recycling		Metal recycling		Food Waste		Glass Recycling		Daily Total	
		Weight	Count	Weight	Count	Weight	Count	Weight	Count	Weight	Count	Weight	Count	Weight	Count		
Tuesday	31/3/20					0.05	1	0.2	1	0.4	3	0.1	2	0.7	1	1.45	8
Wednesday	1/4/20			0.2	1	0.05	1	0.9	6							1.15	8
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Friday	3/4/20	2.3	1	0.2	1	0.1	2	0.4	5			3	0.1	2		3.1	13
Saturday	4/4/20			0.2	1	0.35	7									0.55	8
Sunday	5/4/20			0.6	7	0.25	5			0.3	2					1.15	14
Monday	6/4/20	1.4	1	0.2	1	0.15	3			0.2	2					1.95	6
Total		3.7	2	1.4	11	1.05	21	1.5	12	1.025	11	0.3	7	1.1	2	10.075	64

ITEM COUNT WEIGHT

General Waste 2 3.7

Plastic recycling 11 1.4

Soft plastic 21 1.05

Paper recycling 12 1.5

Metal recycling 11 1.025

Food Waste 7 0.3

Glass Recycling 2 1.1

Ready



### STEP 5:

Now that the data is collated, we are ready to create graphs to represent the information. Highlight the "ITEM" column and the "COUNT" column. Be sure to also include the headings.

DAY	DATE	General Waste		Plastic recycling		Soft plastic		Paper recycling		Metal recycling		Food Waste		Glass Recycling		Daily Total	
		Weight	Count	Weight	Count	Weight	Count	Weight	Count	Weight	Count	Weight	Count	Weight	Count		
Tuesday	31/3/20			0.2	1	0.05	1	0.2	1	0.4	3	0.1	2	0.7	1	1.45	8
Wednesday	1/4/20					0.05	1	0.9	6							1.15	8
Thursday	2/4/20					0.1	2			0.125	1	0.1	3	0.4	1	0.725	7
Friday	3/4/20	2.3	1	0.2	1	0.1	2	0.4	5			3	0.1	2		3.1	13
Saturday	4/4/20			0.2	1	0.35	7									0.55	8
Sunday	5/4/20			0.6	7	0.25	5			0.3	2					1.15	14
Monday	6/4/20	1.4	1	0.2	1	0.15	3			0.2	2					1.95	6
Total		3.7	2	1.4	11	1.05	21	1.5	12	1.025	11	0.3	7	1.1	2	10.075	64

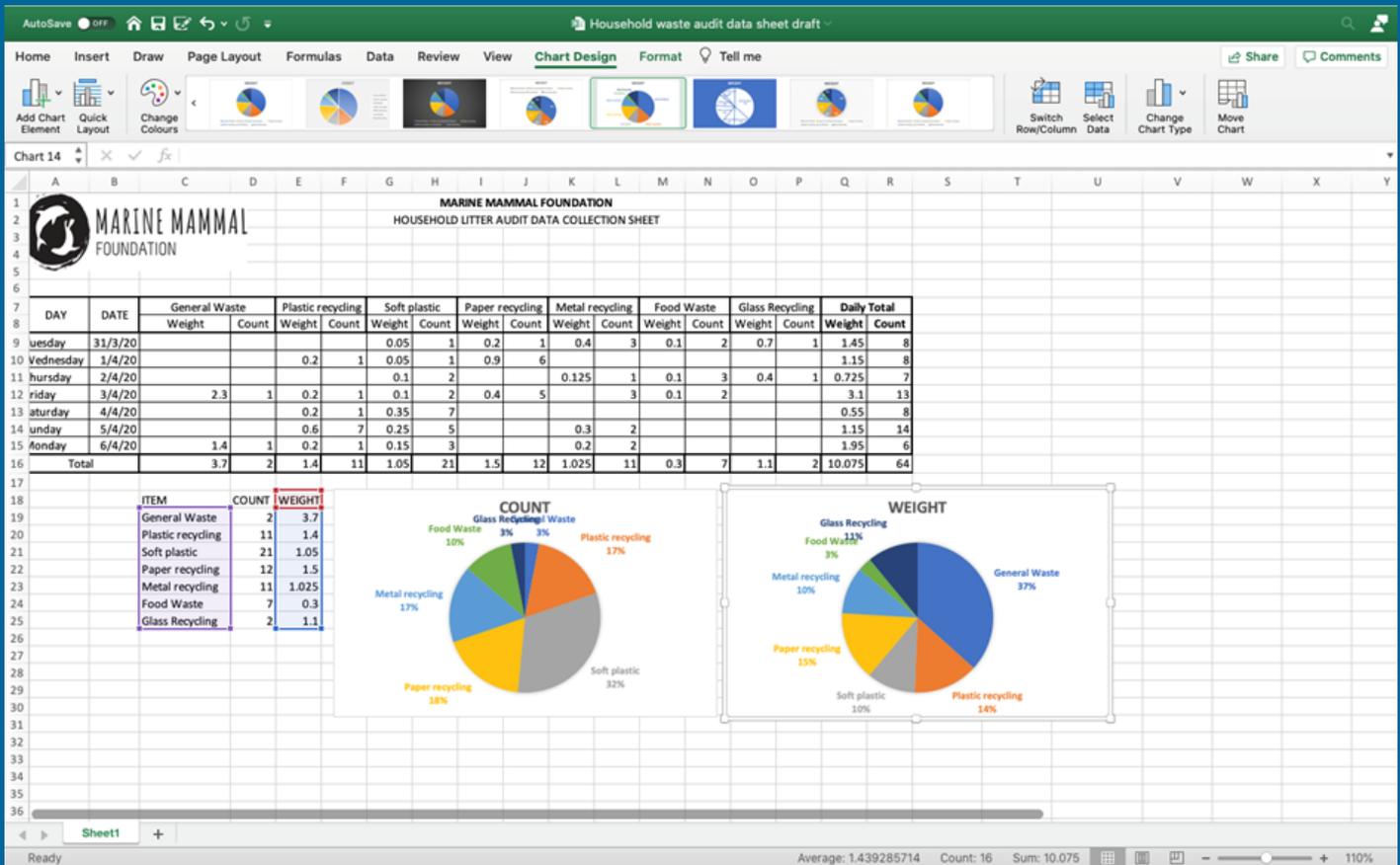
  

ITEM	COUNT	WEIGHT
General Waste	2	3.7
Plastic recycling	11	1.4
Soft plastic	21	1.05
Paper recycling	12	1.5
Metal recycling	11	1.025
Food Waste	7	0.3
Glass Recycling	2	1.1

At the top of page, select "Insert", and move your cursor over to the graphs as a part of the dropdown. Select Pie, and select 2D pie.

The screenshot shows the Excel interface with the 'Insert' tab active. The 'Charts' group is expanded, and the 'Pie' chart type is selected. A dropdown menu is open, showing three options: '2-D Pie' (which is highlighted), '3-D Pie', and 'Doughnut'. The background spreadsheet is the same as in the previous image, showing the household litter audit data.

Excel will then create a Pie Chart using your data for "COUNT". You will also be able to change the look of your chart to include titles, labels and percentages. To create the relevant graph for weight data, repeat STEP 5 highlighting "ITEM" and "WEIGHT" (if applicable).



Now that your data is visually represented in a graph, you can begin to analyse and interpret your information, and begin to make inferences.

Which type of litter contributed the most to your audit? Which type of litter contributed the least to your audit? Why do you think this was the case? Were there other variables and factors which contributed to your results? Are the count and weight results similar or different? Is there a reason for this? Are there areas in which you think you are able to reduce your waste?

To answer these questions, you may want to experiment with visualising your data in other ways. Are there other types of graphs that can be used to better understand your findings? Perhaps you might want to explore your data differently, and look at the waste collected by day, rather than by type, and see if there are any other patterns or trends you can identify.

