STATISTICAL INVESTIGATIONS – SET 4 – PART 1

Ⓐ *Can pose summary type investigative questions*

I wonder…. Questions (I wonder helps them phrase the questions correctly)

Students should not already know the answer to their question.

These questions will have a variable that can be measured e.g. with time, length, weight or money.

- I wonder how long does it take to get to the school office? I wonder how much apples weigh? I wonder if all classes raised the same amount of money in the bake sale?

There may be 2 or more variables e.g. comparing the measured variable for two or more groups.

- I wonder if it take girls or boys longer to get to the school office? I wonder if apples are heavier than bananas? I wonder if the senior school classes all raised more than the middle and junior school classes?

Note: *Getting students to fill in the https://new.censusatschool.org.nz/ Survey is an excellent tool to help students collect data, it also provides data sets that students can use to create their "I wonder" questions and investigations with.*

Ⓑ *They collect and display whole number data in different ways.*

Students should be confidently using a few of the methods below. Note: Not all graphs are suited to all types of data, I didn't use the apple data for the dot plot as the spread of numbers varied too much.

Ⓒ Listing data

Weight of apples (g)

151	164	162	183	163	153
158	177	180	171	168	162
183	146	151	171	149	179

- Needs a title,
- Needs a number for ever data point collected.

Ⓓ Tally and Frequency Chart

Size of apples

Apple Size	Tally	Frequency
Small – 159g	𝍸	6
Medium 160g- 179g	𝍸|||	9
Large 180g +	|||	3

- Needs a title
- Needs headings along the top labeled.
- Needs variables down the left hand side labeled
- Knows to cross every 5th tally 𝍸 = 5
- Can total up the frequency.

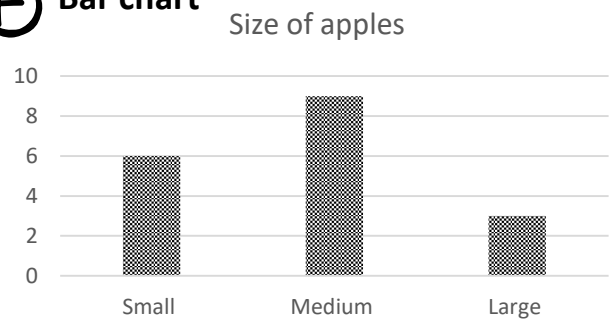
Ⓔ Stem and leaf graph

- Needs a title
- Each data value is split in the "leaf" (usually the last digit) and a "stem" (the other digits). They stem values are listed down from smallest to biggest, and the 'leaf' values are listed next to them.
- E.g. 179 grams is **17** 9

Weight of apples (g)

14	6	9			
15	1	3	8	1	
16	4	2	3	2	8
17	7	**9**	1	1	
18	3	3	0		

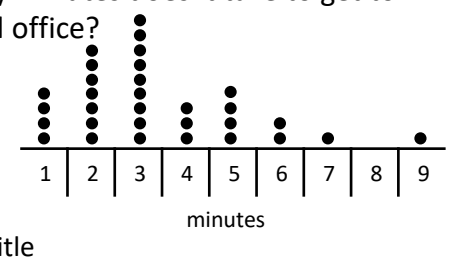
Ⓕ Bar chart



- Needs a title
- Categories labeled along the x axis (bottom)
- Numbers correctly placed along the y axis
- Bars drawn to the correct height.
- Bar charts can be drawn by hand, using google docs or excel

Ⓖ Dot Plot

How many minutes does it take to get to the school office?



- Needs a title
- Needs numbers along x axis and labelled.
- Needs a dot placed correctly for each data point.

Jake Wills and Olivia Walker-Wills – 2020

STATISTICAL INVESTIGATIONS – SET 4 – PART 2

They can communicate their findings in context.

Can explain why they choose to use their graph.

Example Teacher : Explain how you choose that graph?
Student : 'I choose to use … graph because …..'

Can explain how they created the graph.

Example Teacher: What steps did you use to create that graph?
Student: The first thing I did was…. the next step was….

Can explain what other graph they could've used

Example Teacher: Explain to a friend what other graph could you have used instead and why.
Student: I could've used …… it would've been good to use because….

Can explain what the data in your graph shows

Example Teacher: Write down what information your found out from your graph.
Student: I found out that some ……. and no one did …..
(use a lot of quantifiers – all, a lot, a large amount, most, some, a few, no one, none etc.)

Starting to form own thoughts and opinions from the information in a graph.

Example Teacher: What is something interesting that you have found out.
Student: I don't think there should be more ….. because…
Student: I think this shows if you get …. time you run really fast.
(Answer with their personal opinion may mention what they think or feel)

Jake Wills and Olivia Walker-Wills – 2020