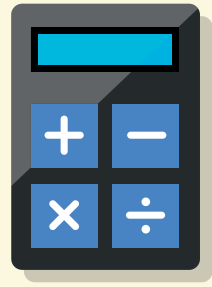# Graphing and analysing superannuation data

This sequence is intended as a framework to be modified and adapted by teachers to suit the needs of a class group.

Resources needed

- Superannuation – Explainer

- Superannuation – Investigation

- Investigation super – Data sheet

- Computer with spreadsheet software for each student

Suggested activity sequence

Part A: Exploring superannuation

a. Use a *grouping strategy* to organise students in groups of 3 or 4.

b. Students read the *Explainer* and groups decide on a definition of superannuation and write their definition on the board.

c. When all definitions are displayed, discuss the concept of superannuation and develop a simple class definition.

Part B: Calculating super

1 Explicitly teach students how to calculate the superannuation guarantee using a gradual release of responsibility model.

To calculate the money your employer puts into your super account for you:

$$\text{Super} = 9.5\% \times \text{salary}$$

For example: You're a third year apprentice plumber and your weekly wage is $669.53 per week. How much super should your employer pay into your super account?

$$\text{Super} = 9.5\% \times \text{salary}$$
$$= 0.95 \times \$669.53$$
$$= \$63.61$$

2 Ask students to do 5 simple calculations and a sixth one which is a bit more challenging – perhaps a 'working backwards' question, for example, if your employer pays $72.30 into your super account, what's your salary?

$$\text{Super} = \text{Percentage} \times \text{Salary}$$

Dividing both sides of the equation by the percentage:

$$\frac{\text{Super}}{\text{Percentage}} = \frac{\cancel{\text{Percentage}} \times \text{Salary}}{\cancel{\text{Percentage}}}$$
$$\frac{\text{Super}}{\text{Percentage}} = \text{Salary}$$

Substitute in known values:

$$\text{Salary} = \frac{\text{Super}}{\text{Percentage}}$$
$$= \frac{(72.30)}{(0.095)}$$
$$\text{Salary} = \$761.05$$

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Part C: Exploring super data

1 Discuss with students some of the key concepts around super:

    a. Why do we need super – what about the age pension?

    b. How much might you need to retire comfortably?

    c. How long does retirement last?

    d. Why do we need to start so young?

    e. How else can you increase your super?

    f. What happens if you're out of the workforce for a while?

    g. Do they think women and men are likely to have the same amount of super? Why, why not?

2 Model the task students will do by doing a simple example as a whole class. If you're all working together on this, everyone will need access to a computer with spreadsheet software.

This is the weekly wage of 5 people in a netball team. Two people in the team didn't want to share their information.

$1,845, $1,529, $2,135, $1,150, $986

    a. Set up a spreadsheet and put the weekly pay data in excel.

    b. Sort from lowest to highest.

	A	B	C	D
1		Weekly pay	Employers super contributions	Total cost to employer
2				
3				
4				
5				
6				
7	Average (mean)			
8	Median			

    c. Put in a formula to calculate super (=0.095*B2).

    d. Put in formulas to calculate average and median and total cost to employer (for example, =AVERAGE(C2:C6) and =MEDIAN(C2:C6) and =B2+C2).

    e. Discuss with students about the average and the median being the same.

3 The rest of the team have decided they will share what they get paid too. One gets $950 and the other gets $3,428.

    a. Add rows, sort, check the formulas then examine the mean and median. Again, discuss what's happened to these 2 measures of central tendency.

Set up this table on your spreadsheet.

Category	Number of people in this category
0-999	
1000-1999	
2000 +	
Total	*Put in a sum formula here*

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b. Tally the number of people with wages within each category.

c. Add the formula to calculate total people – discuss with students what they expect the figure to be and what should they do if it's not.

d. Add a chart. Try both a line graph and a column graph, change the colours and add titles.

4 Students complete the *Investigation*. To do so, they will need copies of the *Data sheet.*

5 Walk the students through the instructions, reminding them of the similarities to the problem you modelled.

6 Students may benefit from working individually and/or in small discussion groups.

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