# Is that fair?

Students discover what tax is and explore different systems of how income tax could be collected. Through this discovery, students determine which system is most fair for all workers and learn about the tax system in Australia.

## Visible learning

### Learning intentions

* To know about the income tax system of Australia.
* To be able to explain why one tax system is fairer than another.

### Success criteria

* I can describe what tax is and how it is used in Australia.
* I can use calculations to compare different systems for collecting tax.
* I can justify why one tax system is superior to another in terms of fairness.

### Syllabus outcomes

A student:

* develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly **MAO-WM-01**
* solves financial problems involving simple interest, earning money and spending money MA5-FIN-C-01

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## Activity structure

### Warm up (optional)

1. As a class, play the ‘A fair share’ game by Oxfam Education ([bit.ly/Oxfamafairshare](https://bit.ly/Oxfamafairshare)). There are 2 activities.

The first activity gives each student in the class either one, 2 or 5 tokens. There is a list of items to be purchased that are above 5 tokens. Students group together to purchase the more expensive items. They then discuss if it was fair that some people had more tokens than others and whether each person should have to share the same amount of tokens.

The second game has the students form groups of 4–6. Each group represents a different community, that is, low-income family, small business, high income family and so on. Each group is given a different number of tokens in relation to their community description. They then select scenarios where tax needs to be paid from their tokens. At the conclusion, the class discuss whether the system of paying tax for each group was fair.

### Launch

1. Conduct a brief class discussion, asking student to share what they know about tax. Questions could include:
* What is tax?
* Why is it collected?
* What does tax contribute to?
* What could happen if it didn’t exist?
1. If students have a limited understanding of tax, show students the video ‘ATO – A boy called Tax’ (2:56)’ ([bit.ly/ATOboycalledTax](https://bit.ly/ATOboycalledTax)).
2. Once students have a basic understanding of tax, pose the question:

‘Is it fair, that in 2020 to 2021, 4% of Australian taxpayers paid 35% of the overall tax, whilst 29% of Australian taxpayers paid 3% of the overall tax?’

1. Use a Think-Pair-Share ([bit.ly/thinkpairsharestrategy](https://bit.ly/thinkpairsharestrategy)) strategy for students to discuss the statement above. They should explain their reasoning to justify their decision.
2. Select a few non-volunteer students to share their thoughts and reasons with the class.

It is intended that this question should spark curiosity into how income tax is calculated in Australia. Students should be led to consider the income of each of these taxpayers and how that may contribute to the amount of tax paid. Australia’s individual tax rates should not be shown to the class at this point.

### Explore

1. Assign students into visibly random groups of 3 ([bit.ly/visiblegroups](https://bit.ly/visiblegroups)).
2. In their groups, students are to work through Appendix A ‘A fair system’. Students are given 3 system of how income tax could be collected from an individual’s earnings. One is an example from the Australian tax brackets, and the others are fictional. Students will discuss which system seems fairer.
3. Once students have chosen a fair system, they then create their own fair system.
4. Have a class discussion to see what groups thought about the systems that were presented. Conduct a class vote, such as a finger vote where students hold up one finger to vote for system one and 2 fingers to vote for system 2, 3 fingers to vote for system 3, on which system they think seemed fairer and the reasonings why.
5. Ask non-volunteer students to explain a new system they have created. Allow an opportunity for students to explain their reasoning and for the class to give some feedback on each new system.

### Summarise

1. Explain to students that Australia has a progressive tax system, which means that the higher your income, the more tax you pay. For low incomes no tax is paid, and as your income increases so does the percentage of your income that you pay as tax.
2. Display the Desmos graph ‘Calculating income tax’ ([bit.ly/desmoscalculatingtaxgraph](https://bit.ly/desmoscalculatingtaxgraph)).
3. Slowly drag the orange point to the right.
4. Ask students to Think-Pair-Share ([bit.ly/thinkpairsharestrategy](https://bit.ly/thinkpairsharestrategy)) what they notice and what they wonder. At the same time, continue to move the orange point from the origin along to the right.
5. Conduct a class discussion about what they notice and what they wonder, some prompting questions could include:
* How much tax is paid when an individual’s income is less than $18 200?
* What do you notice about the lines in each section?
* What do you notice about the gradient of the line in each section?
* Why might the gradients of each section be different?
1. Students should be shown current individual income tax rates ([bit.ly/ATOincometaxrates](https://bit.ly/ATOincometaxrates)) by the Australian Taxation Office, with a brief explanation. It is not the intention that students explore how to use them to calculate an individual’s tax payable until Lesson 9.

### Apply

1. Either explain to students that in Finland they determine the amount of a speeding fine based on your income or have them individually read the article ‘Finnish man hit with $195,796 speeding fine’ ([bit.ly/Finlandspeedingtickets](https://bit.ly/Finlandspeedingtickets)).
2. Students are to Think-Pair-Share their thoughts on this system and whether they believe it is fair.
3. Each pair is then to form a group with another pair to further discuss whether this system of paying speeding fines is fair.
4. Students are them to brainstorm, in their pairs, what else could be charged in this manner.

## Assessment and differentiation

### Suggested opportunities for differentiation

**Launch and explore**

* Students may require further explanations as to what tax is and specifically what income tax is before commencing some activities.
* Students may need to revise percentages, specifically how to find a percentage of a quantity.

**Summarise**

* Students may need to revise the concept of gradient, what it is and how it is calculated. A review comparing lines with varying positive gradients may be of benefit.

### Suggested opportunities for assessment

**Explore**

* Monitor student discussions as they decide which tax systems seem fair, to address any misconceptions regarding tax and percentages.
* Appendix A ‘A fair system’ could be collected to review students understanding.

## **Appendix A**

### A fair system

1. Consider each system in the table below for collecting tax from individual’s earnings.

|  |  |
| --- | --- |
| System | Explanation |
| System 1 | A set amount of $33 000 is collected from every worker in Australia each year. |
| System 2 | A set percentage of 35% of an individual’s income is collected from everyone in Australia. |
| System 3 | Every worker in Australia pays a set amount of $5092, plus whatever amount they earn over $45 000, they play 32.5% of this amount.  |

1. In your group, discuss which system seems fairer. Write some advantages and disadvantages for each in the table below.

|  |  |  |
| --- | --- | --- |
|  | Advantages | Disadvantages |
| System 1 |  |  |
| System 2 |  |  |
| System 3 |  |  |

1. Consider the professions in the following table. For each profession, calculate the amount of tax that each professional would pay for each of the systems to complete the table.

|  |  |  |  |
| --- | --- | --- | --- |
| Profession and average income | Tax paid in System 1 | Tax paid in System 2 | Tax paid in System 3 |
| Plumber$75 000 p.a |  |  |  |
| Executive assistant$82 000 p.a. |  |  |  |
| Construction manager$96 000 p.a. |  |  |  |

1. In your group discuss which system seems fairer now that you can compare amounts. Has your choice changed? Write a brief conclusion in the space below.

|  |
| --- |
|  |

1. Create your own fair tax system for collecting money from individual earnings.
* How is your system fairer? Use calculations to help justify your choices.
* Explain how you would collect tax to pay for community services.

## Sample solutions

### Appendix A – a fair system

Consider the following professions. For each profession calculate the amount of tax that each professional would pay for each of the systems.

|  |  |  |  |
| --- | --- | --- | --- |
| Profession and average income | Tax paid in System 1 | Tax paid in System 2 | Tax paid in System 3 |
| Plumber$75 000 p.a. | $33 000 | $$0.35×75 000$$$$=\$26 250$$ | $$5092+0.325×75 000$$$$=\$29 467$$ |
| Executive assistant$84 000 p.a. | $33 000 | $$0.35×84 000$$$$=\$29 400$$ | $$5092+0.325×84 000$$$$=\$32 392$$ |
| Construction manager$96 000 p.a. | $33 000 | $$0.35×96 000$$$$=\$33 600$$ | $$5092+0.325×96 000$$$$=\$36 292$$ |

## References

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