# You should eat more chocolate

Students manipulate data to persuade an audience. They create an infographic using Canva and provide written justification for decisions made.

## Visible learning

### Learning intentions

* To persuade an audience with statistics.
* To identify bias in graphical displays.

### Success criteria

* I can manipulate data to persuade an audience.
* I can identify bias in graphical displays.

### 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**
* classifies and displays data using a variety of graphical representations   
  **MA4-DAT-C-01**
* analyses simple datasets using measures of centre, range and shape of the data **MA4-DAT-C-02**

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## Activity structure

### Launch

1. Display the [infographic](https://www.canva.com/design/DAFbWUT5d18/EyOeY2wFREqmiPZOApT78A/view?utm_content=DAFbWUT5d18&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton) created with Canva ([bit.ly/chocolatecanva](http://www.bit.ly/chocolatecanva)).
2. Have students discuss the following points as a [Think-Pair-Share](https://bit.ly/thinkpairsharestrategy) ([bit.ly/thinkpairsharestrategy](https://bit.ly/thinkpairsharestrategy)):
3. What is the author’s intent?
4. Do you believe all of the points provided in the infographic? Why or why not?

The statistics within the infographic were obtained from [7 Proven Health Benefits of Dark Chocolate](https://www.healthline.com/nutrition/7-health-benefits-dark-chocolate) (<https://www.healthline.com/nutrition/7-health-benefits-dark-chocolate>).

1. Explain that the infographic was created to persuade the audience that chocolate is better for us than it actually is.
2. Issue students with [Appendix A – Persuading the audience](#_Appendix_A) which provides a table for students to complete in pairs or small groups. Students will discuss with one another how different elements of the infographic, such as the title, the reference to fibre and so on have been used to persuade the audience. This can be done using [VNPS](https://bit.ly/VNPSstrategy) ([bit.ly/VNPSstrategy](https://bit.ly/VNPSstrategy)) and students can either do a [gallery walk](https://bit.ly/DLSgallerywalk) ([bit.ly/DLSgallerywalk](https://bit.ly/DLSgallerywalk)) or a class discussion can be used to discuss these points.
3. Sample answers could be:
4. **Title**: The statistics used were regarding dark chocolate, and often high percentage cacao dark chocolate. The author deliberately left out dark in the title to allow the audience to believe these were benefits of eating all chocolate.
5. **Fibre**: ‘…more than 4 times’ is used to exaggerate what is actually 4.07 times. The comparison is to a slice of white bread which has less fibre than other varieties.
6. **Antioxidants**: ‘studies show…’ actually just 1 study. Experts say there isn’t enough evidence yet to be certain of this benefit.
7. **Blood pressure**: The effects are usually mild, another study showed no effect, clearly more research needed.
8. **Sunscreen:** Hyperbole used to grab attention. Benefits occur after eating high-flavanol dark chocolate or cocoa for 12 weeks. Still won’t replace sunscreen for skin protection.
9. **Brain function**: Most likely these benefits are due to caffeine in dark chocolate. Very little evidence or research to support this idea.
10. **Average sugar**: This was the median of 3 varieties of dark chocolate. The median was chosen as the mean was significantly higher.

### Explore

1. Students are to pick an example headline or create their own, with the intention of persuading the audience.

Example headlines:

* Video games make kids smarter.
* Homework should be banned.
* Teens should be staying up later.

1. Students use a device to find up to 3 articles with evidence that supports their headline.
2. Students use Canva to create an infographic that presents the evidence they found in a way that will persuade the audience. Ensure students understand that they are not to make up or lie about statistics, rather only highlight affirmative points and data that supports their headline.

See the [Beginning Teacher Tech Guide](https://e.issuu.com/embed.html?d=magazinet4l22&u=technology4learning) for instructions on students accessing Canva (<https://bit.ly/beginningteachertechguide>).

Bringing in a prepared headline and 3 accompanying articles would be recommended if students are likely to struggle finding these.

Students could be challenged to find and manipulate data to support their point. For example, calculating the mean, median and mode and choosing the one that is favourable for their argument.

### Summarise

1. Students summarise the decisions they made to manipulate the audience of their infographic.

Students’ summaries could be written pieces or discussed in a Think-Pair-Share.

1. Encourage discussion of bias in media and ensure students understand that reading into an author’s intent is an important aspect of data literacy.
2. If teachers have a class created in Canva (<https://www.youtube.com/watch_popup?v=AjQM5SrYIaY>), students can share their created infographics with the class. This would allow the inclusion of students being able to do a gallery walk of each other’s infographics.
3. Students select another student’s infographic and consider what features/information they have used to persuade you.

Alternatively, students’ infographics could be printed and displayed around the room in a follow up lesson.

### Apply

1. Students have 1 week to bring in an example of data being used to persuade an audience. It could be a story from a newspaper, a post on social media, an ad on television, and so on.
2. In class, students share their example with a partner.

Teachers might like to have several examples ready for students that were not able to bring in an example.

## Assessment and Differentiation

### Suggested opportunities for differentiation

**Explore**

* High ceiling – have students generate or find the averages for data that help their case, for example, the average sugar in dark chocolate is… but you’ve used the 3 lowest on the market (different % of cacao).
* Challenge students to use Google scholar to find their statistics. This YouTube video provides an overview of [5 features of Google Scholar (5:16)](https://www.youtube.com/watch?v=-T3ZQbDw4GE) that are helpful for students to know (<https://youtu.be/-T3ZQbDw4GE>).

**Summarise**

* Teachers could provide a scaffold for students to summarise their decisions to reduce students’ cognitive load or to deepen student responses.

### Suggested opportunities for assessment

* Collect students’ infographics to assess their ability to communicate and justify with statistics.
* Informally assess students’ understanding of the measures of centre by questioning which they have chosen to use (if any) and why.

## Appendix A

### Persuading the audience

Using the [infographic](http://www.bit.ly/chocolatecanva) created with Canva ([bit.ly/chocolate Canva](http://www.bit.ly/chocolatecanva)), complete the table by considering how each element of the infographic has been specifically designed to persuade the audience that chocolate should be eaten more. An example has been provided as well as a blank row if you can think of other elements.

|  |  |
| --- | --- |
| Element | How has this persuaded the audience? |
| Title | The statistics used was regarding dark chocolate, and often high percentage cacao dark chocolate. The author deliberately left out ‘dark’ in the title to allow the audience to believe these were benefits of eating all chocolate. |
| Fibre |  |
| Antioxidants |  |
| Blood pressure |  |
| Sunscreen |  |
| Brain function |  |
| Average sugar |  |
|  |  |

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