Do you love chocolate?

Link to Australian Core Skills Framework:

Students performing at a Level 3, typically select appropriate strategies from a variety of everyday mathematical processes in familiar and some less familiar contexts. They interpret and comprehend mathematical information in written material, diagrams, charts and tables. They use large whole numbers in words and figures, and understand and convert routine fractions, decimals and percentages.

Link to Numeracy Learning Progressions:

Table 1 – Numeracy Learning Progressions and their descriptors

Level	Indicator
OwP2	Find a percentage as a part of a whole • multiplies to calculate a percentage of any amount. • reads and writes numbers applying knowledge of the place value periods of ones, thousands, millions
OwP4	Find the whole from a percentage and a part • determines the whole given a percentage
IRD2	Collecting and displaying data • justifies data collection methods to fit the context
IRD3	Interpreting data scales • explains how data displays can be misleading
IRD4	Shape of data displays • compares the usefulness of different representations of the same data
IRD5	Graphical representations of data • uses graphical representations relevant to the purpose of the collection of the data

Learning intention

Students will learn to:

- calculate with percentages
- read tables and graph information
- communicate their reasoning and justify their responses

Resources required

- computer with access to internet
- paper or book to record results
- calculators

Part A: Australia's chocolate habits

Chocolate is one of the most popular and widely consumed products in the world. Chocolate is often considered an "affordable luxury". The variety of chocolate products available around the globe is seemingly without limit. Chocolate is classified according to the amount of cocoa it contains with milk chocolate containing approximately 10% cocoa and dark chocolate containing more than 60% cocoa.

Roy Morgan researchers discovered that 14.2 million Australians aged over 14 years consume chocolate in a four week period. Chocolate bars are the preferred choice for Australians. Victoria is the chocolate capital of Australia.

The typical consumer of all three types of chocolates tends to be a well-educated woman who is either still at university or in gainful white collar employment with her own degree or diploma.

Chocolate blocks find favour with Generation X, chocolate bars are the pick of the Millennials and Generation Y have a particular taste for boxed chocolates.

Source: Roy Morgan

1. In a Roy Morgan (2018) Australian research they determined that 10.98 million people consumed chocolate bars and this accounted for 77.5% of people, 8.91million people consumed chocolate blocks and this accounted for 62.9% of people and 4.4million people consumed boxed chocolates and this accounted for 31.1% of people. Calculate the number of people they surveyed.

   For example, if 10.98 million represents 77.5% then 100% can be calculated by:
   $10.98 \div 77.5 \times 100 = 14.17 \text{ million}$

   Do this process for the chocolate blocks and boxed chocolates. Compare your answers and explain why you think they are the same or different

2. Using 14.17 million as the number of people surveyed, calculate the following Australian consumption amounts for:
   - Chocolate bars only 25%
   - Chocolate blocks only 14%
   - Boxed chocolates only 4.5%
   - Both chocolate bars and blocks 30%
   - Both chocolate blocks and boxed chocolates 3.9%
   - Both chocolate bars and boxed chocolates 7.6%
   - All three- chocolate bars, blocks and boxed 15%
3. Research to determine the years of birth for:
   - Generation X
   - Generation Y
   - Generation Z
   - Millennials
4. Complete a survey of 100 people about their chocolate eating habits in an average week. Make sure you ask about what type they eat, how often and the generation they belong to. Display your results in a table.

Part B: Who consumes the most chocolate in the world?

5. Using the information in the table below, create three different graphs to represent the chocolate consumption per person in the top twenty countries. You may want to use an excel spreadsheet

Country	Consumption of chocolate per person (kg)
Australia	4.9
Austria	8.1
Belgium	5.6
Czech Republic	4.9
Denmark	4.9
Estonia	6.5
Finland	5.4
France	4.3
Germany	7.9
Great Britain	7.6
Ireland	7.9
New Zealand	5
Norway	5.8
Poland	5.7
Russia	4.8
Slovakia	5.2
Sweden	6.6
Switzerland	8.8
The Netherlands	5.1
United States	4.4

Source: statista website

Part C: Validating the data

6. Write a response outlining your chocolate consumption habits, comparing it to the Australian data and the generation you belong to, use evidence from your calculations.
7. Write a response outlining the results from your survey on the consumption of chocolate in your local area. Compare this to your own and Australian habits
8. Write a response that compares your graphs on the world consumption of chocolate. Explain why you chose each graph and any ways your graphs might mislead a reader.