 Designing a chocolate bar

Task 1

If you were to create a new chocolate bar, what would it cost?

Understanding the problem

1. Make a list of the sorts of things you would need to consider when designing a new chocolate bar.
2. What sorts of things would have an impact on its price?

Investigating the opposition

Collecting data

Either in person, online or using catalogues, investigate other chocolate bars. Collect data on the items you identified in the previous section. For example, weight, price or size.

Analysing data

1. Use statistics to analyse the data you have collected. You may like to calculate the mean, median, mode, and range.
2. Is there a relationship between any of your data?

* Start by plotting ‘pric e vs weight’. What do you notice?
* Plot similar graphs for other items which you think may have an effect on price.

1. Which chocolate bar is the best value for money? How do you know?
2. Which chocolate bar is the worst value for money? How do you know?

Making decisions

Draw a diagram showing the dimensions, shape and cost of your new chocolate bar. Justify your decision using any of your calculations above.

Task 2

Design a logo

* Design a logo for your chocolate bar using the shapes we explore in Stage 4 – Area.
* Your logo should include 5 – 8 different shapes from the topic. A repeated shape is not a different shape.
* The outline of your logo must form a composite shape and it should have an area that is no less than 320cm2 in total but no more than 480cm2. You will need to calculate the area of this composite shape, showing all working out to verify that you have worked within the parameters.
* You must break down the logo into the 5 – 8 different shapes you have chosen and find the area of each one. Be sure to show all working out in your calculations.

Outcomes

* MA4-1WM communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols
* MA4-2WM applies appropriate mathematical techniques
* MA4-3WM recognises and explains mathematical relationships using reasoning
* MA4-13MG uses formulas to calculate the areas of quadrilaterals and circles, and converts between units of area
* MA4-14MG uses formulas to calculate the volumes of prisms and cylinders, and converts between units of volume
* MA4-19SP collects, represents and interprets single sets of data, using appropriate statistical displays
* MA4-20SP analyses single sets of data using measures of location, and range

All outcomes referred to in this unit come from [Mathematics K-10 Syllabus](https://educationstandards.nsw.edu.au/wps/portal/nesa/k-10/learning-areas/mathematics/mathematics-k-10) © NSW Education Standards Authority (NESA) for and on behalf of the Crown in right of the State of New South Wales, 2012