Food and fibre: Mathematics

Mathematics

The Australian Curriculum addresses learning about food and fibre predominantly in Design and Technologies and F-6/7HASS/Geography, however there are opportunities to make connections with aspects of Mathematics, particularly Measurement and geometry and Statistics and probability.

Food and fibre dimensions

Mathematics - Years 7 and 8

Year 7
Statistics and probability
Data representation and interpretation
Content descriptions with elaborations:
Identify and investigate issues involving numerical data collected from primary and secondary sources (ACMSP169)
- obtaining secondary data from newspapers, the Internet and the Australian Bureau of Statistics
- investigating secondary data relating to the distribution and use of non-renewable resources around the world

Construct and compare a range of data displays including stem-and-leaf plots and dot plots (ACMSP170)
- understanding that some data representations are more appropriate than others for particular data sets, and answering questions about those data sets
- using ordered stem-and-leaf plots to record and display numerical data collected in a class investigation, such as constructing a class plot of height in centimetres on a shared stem-and-leaf plot for which the stems 12, 13, 14, 15, 16 and 17 have been produced

Number and algebra
Content description with elaborations:
Connect fractions, decimals and percentages and carry out simple conversions (ACMNA157)
- justifying choices of written, mental or calculator strategies for solving specific problems including those involving large numbers
- understanding that quantities can be represented by different number types and calculated using various operations, and that choices need to be made about each
- calculating the percentage of the total local municipal area set aside for parkland, manufacturing, retail and residential dwellings to compare land use

Linear and non-linear relationships
Content description with elaborations:
Investigate, interpret and analyse graphs from authentic data (ACMNA180)
- using travel graphs to investigate and compare the distance travelled to and from school
- interpreting features of travel graphs such as the slope of lines and the meaning of horizontal lines
- using graphs of evaporation rates to explore water storage

Year 8
Number and algebra

Real numbers

Content description with elaborations:

Solve a range of problems involving rates and ratios, with and without digital technologies (ACMNA188)

- understanding that rate and ratio problems can be solved using fractions or percentages and choosing the most efficient form to solve a particular problem
- calculating population growth rates in Australia and Asia and explaining their difference

Statistics and probability

Data representation and interpretation

Content descriptions with elaborations:

Investigate techniques for collecting data, including census, sampling and observation (ACMSP284)

- identifying situations where data can be collected by census and those where a sample is appropriate

Explore the practicalities and implications of obtaining data through sampling using a variety of investigative processes (ACMSP206)

- investigating the uses of random sampling to collect data

Explore the variation of means and proportions of random samples drawn from the same population (ACMSP293)

- using sample properties to predict characteristics of the population

Investigate the effect of individual data values, including outliers, on the mean and median (ACMSP207)

- using displays of data to explore and investigate effects