

MATHS AND AGRICULTURE

STEM CHALLENGE

A PIEFA MEMBERS COLLABORATION



FOR
YEAR 6

SUGARCANE
MATHS CHALLENGE CARDS



CANEGROWERS



Primary Industries Education
Foundation Australia



SUGARCANE MATHS CHALLENGE CARDS

Year: Six

Outcomes:

Interpret secondary data presented in digital media and elsewhere (ACMSP148).

Select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving all four operations with whole numbers (ACMNA123).

Multiply decimals by whole numbers and perform divisions by non-zero whole numbers where the results are terminating decimals, with and without digital technologies (ACMNA129).

Make connections between equivalent fractions, decimals and percentages (ACMNA131)
Connect decimal representations to the metric system (ACMMG135).

Introduction for students:

Sugarcane is a plant similar to bamboo, which is grown in Queensland and the northern part of New South Wales. It is predominately used to to make raw sugar, which is processed for us to eat. The by-products of sugarcane can be used to make other things including fertilisers, substances to be made into plastics, and even energy used to power sugar mills.

Task:

1. Provide each student with a set of Sugarcane Maths Challenge Cards and a device with internet connectivity.
2. Have students read the 'introduction to cane' then work independently to complete the challenge cards in their maths books or on their devices.
3. Provide students with the opportunity to share their answers to the challenge cards at the end of the lesson.

Answers:

1. 0.95, 95/100, 19/20 2. 3688000 metres 3. 260 4. Student answers will vary 5. Student answers will vary 6. 3/4, 75% 7. 7032.97

References:

Sweet Facts About Sugar, CANEGROWERS, URL:

https://www.canegrowers.com.au/icms_docs/327033_sweet-facts-about-sugar.pdf

Queensland's Cane Rail & Raw Sugar on the Move, Australian Sugar Milling Council, 2019
URL: https://asmc.com.au/wp-content/uploads/2020/03/ASMC_Factsheet_Sugar-on-the-move_Feb2020.pdf

Sugar Manufacturing in Australia, Australian Sugar Milling Council, URL:

https://asmc.com.au/wp-content/uploads/2020/01/ASMC_Factsheet_Sugar-Manufacturing-in-Australia_web.pdf

SUGARCANE MATHS CHALLENGE CARDS

Introduction:

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Sugarcane Maths Challenge Cards

1.

95% of Australia's sugarcane is produced in Queensland.

Convert 95% into equivalent fraction and decimal values.

2.

Queensland's 3,688 km Cane Rail network delivers cane to mills across Queensland.

How many metres are there in 3,688 km?

3.

200 trains pull 52,000 cane bins along the Queensland Cane Rail to transport the cane from farms to mills .

How many cane bins are pulled by each train?

4.

Read the information on the [Sweet Facts About Sugar Fact Sheet](#).

Use the blank cards to create your own maths challenge cards using the data provided in the fact sheet.

5.

Check out the map of Australia's sugar mills and ports on the [Sugar Manufacturing In Australia Fact Sheet](#).

Create a data display showing the number of sugar manufacturing locations of each sugar mill. (Examples could include a dot plot, bar graph, table, etc.)

6.

4.7 million tonnes of raw sugar is produced from sugarcane in Australia. 3.7 million tonnes of this sugar is exported to different countries around the world.

Record the equivalent fraction and percentage values for the amount of raw sugar exported each year.

7.

32 million tonnes of sugarcane is produced by the 4,550 sugarcane growers across Australia each year. If each grower was to produce the same amount of sugarcane, how many tonnes would each farm produce?

Record your answer to the nearest two decimal places. Show your working out.

