



# Social Sciences Numeracy Enhanced Plan

## Māori urban migration

### Context

This activity is about **Māori urban migration**. It is part of a broader exploration of change, cultural identity and interaction, and community action within a year 9 or 10 Social Sciences unit.

### Numeracy connections

#### Statistics and data

- » Interpret information in a bar graph, make connections with statements made in a text.
- » Interpret features in a bar graph such as a significant increase in urban migration rates.
- » Understand conventions of bar graphs.

#### Operations with numbers

- » Using fraction benchmarks to visualise and describe percentages.

### Prior Learning

Before being introduced to this learning activity, ākonga will have explored:

- » push and pull factors of migration, both nationally (eg urban and rural) and internationally
- » factors that contributed to Māori urban migration, for example, an increasing Māori population along with pressures on limited land resources to produce and provide for communities (a consequence of land alienation).

### Years 9–10 Social Sciences curriculum (draft)

#### Understand

- » Colonisation and settlement have been central to Aotearoa New Zealand's history for the past 200 years.

#### Know

Whakapapa me te whanaungatanga | Culture and identity

- » Interactions change people's culture and identity, communities, and countries.

Tūrangawaewae me te kaitiakitanga | Place and environment

- » The movement of people within and across borders impacts on people and places.

### Resources:

- » [Kei te Tāone Nui: Māori and the City \(1945–1970\)](#) is a School Journal article by Samuel Denny, Caitlin Moffat-Young, and Aroha Harris. The article is available as a pdf (click on the Text icon).<sup>1</sup>
- » [Supporting information on interpreting fractions and percentages.](#)

<sup>1</sup> The accompanying teacher support materials (TSM) provide suggestions for supporting ākonga with the literacy demands of the text.

**1**

## Activity 1: Sequence of learning



45 min

# Identifying trends in Māori urban migration

To activate prior knowledge, ākonga **discuss in pairs** what they think the terms urban, rural and migration mean. Ākonga **share anything they might know** about Māori urban migration using the following cues:

- » who?
- » what?
- » when?
- » where?
- » how?

Share with ākonga a copy of the first page of the School Journal article [Kei te Tāone Nui: Māori and the City \(1945–1970\)](#).

**Accessibility connection:** *Share the article in formats that meet the needs of diverse learners, for example, electronically or printed.*

Ākonga **skim read the text**, and:

- » underline/highlight any words or phrases that are important
- » circle any words or phrases they don't know.

Ākonga re-read the text closely. Encourage them to **use the context** to help them guess what the circled phrase or word means.

Have ākonga **explain to a partner:**

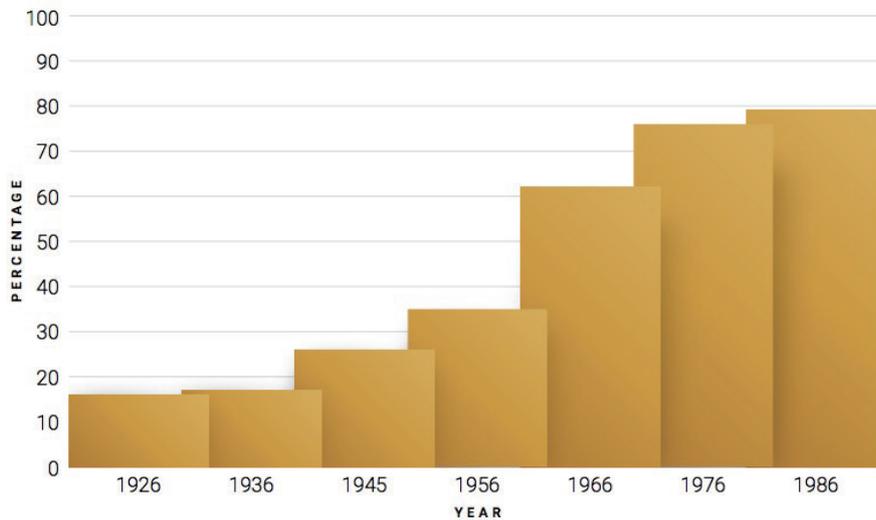
- » why they think the word(s) or phrase(s) they underlined are important.
- » what the word(s) or phrase(s) they are unsure of mean, and why they think this.

**Literacy connection:** *See the [Literacy Pedagogy Guide for Social Studies](#) and the [School Journal Teacher Support Materials](#) that accompany the article for further ways to support ākonga with the literacy demands of the text.*



# 1 Activity 1: Sequence of learning (continued)

**Display** the graph on page 37 of the article.



**Percentage of Māori living in urban areas by decade (1920s to 1980s)**

**Give ākonga questions** they can use in pairs or small groups to think, reason, and make sense of the graph, for example:

- » what does this graph tell us about Māori urban migration?
- » what trend can you see?
- » what does it make you wonder?
- » what conclusions can you draw from this graph?
- » what gaps might there be in the information it provides?

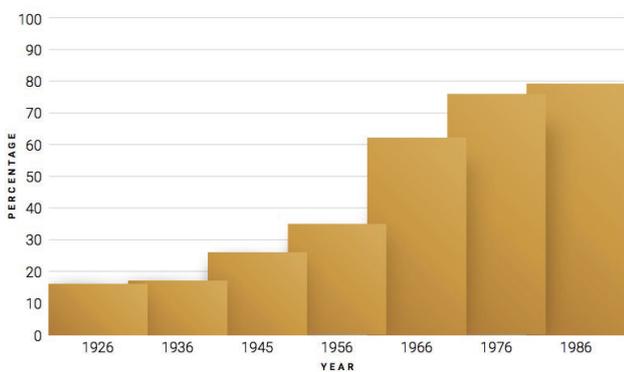
**Activity note:** *Ākonga might identify that:*

- » *the percentage of Māori living in cities increased between 1926 and 1986. We can see this because the bars get taller each decade.*
- » *there was not a lot of change between 1926 and 1936. We can see this because the bars are a similar height.*
- » *the most significant (largest) change took place between 1956 and 1966, with the percentage of Māori living in urban areas growing from around 35% to just over 60%*
- » *the graph tells us that big changes took place but doesn't help us to explain why the change happened or what impact it had on communities.*

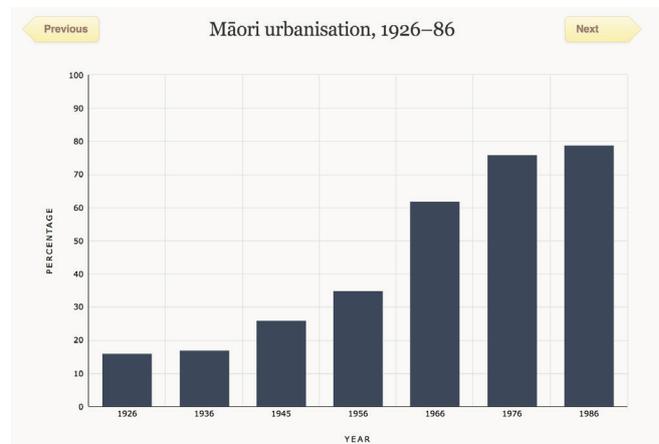
**Numeracy connection:** *In this activity, ākonga provide evidence-based conclusion and explain their reasoning.*

## Comparing bar graphs of Māori urban migration

**Display** the [Māori urbanisation graph \(1926–1986\)](#) from Te Ara Encyclopedia of New Zealand alongside the graph in the School Journal article.



Percentage of Māori living in urban areas by decade (1920s to 1980s)



Ākonga work in pairs to **compare the two graphs**, noticing any differences and identifying unusual features.

**Activity note:** Ākonga could point out that the bars in the School Journal graph overlap while the bars in the Te Ara graph have gaps between them. They could also identify that the scale on the x-axis of both graphs is irregular (1945 instead of 1946). Ākonga might question whether the 1945 axis label is a typo or, based on prior knowledge, hypothesise that this might have something to do with the Second World War.<sup>2</sup>

**Use think-pair-share** to identify and share the benefits of having gaps between bars rather than overlapping bars.

**Answers:** Ākonga might comment that:

- » using separate columns makes the growth in Māori urbanisation more obvious
- » the overlapping bars mean that there is conflicting information about Māori urbanisation figures, for example, the School Journal graph suggests that the percentage of Māori living in urban areas in 1960 was both 35% and 62%, which is impossible.

**Numeracy connection:** Understanding the conventions of bar graphs supports ākonga to use appropriate data displays in their own work.

<sup>2</sup> The data in the graphs are based on census data. Generally, census data is collected every five years, and one way the data is used is to determine electoral boundaries. In 1941, no census was held because of the Second World War. Because 1946 was an election year, the census needed to be held one year earlier than usual in order for the government to be able to establish electoral boundaries. This is why the scale on the graph is uneven.



## Interpreting percentages in a Social Studies text about Māori urban migration

Ask ākonga to **identify the three statistics** provided in the text on page 37

- » Between 1939 and 1951, the percentage of Māori living in a town or city doubled.
- » By 1956, more than a third of the Māori population (35%) had moved to an urban area.
- » A decade later, that number was almost two-thirds (62%).

**Activity note:** *The text supports readers to make sense of the percentages by comparing them to common or benchmark fractions<sup>3</sup>, using words such as 'more than' and 'almost' to show that the fraction is an approximation.*

**Focus** on the statement “By 1956, more than a third of the Māori population (35%) had moved to an urban area.”

**Draw a diagram** on the board representing one third:



In this context, one third means that one out of three people in the Māori population were living in an urban area.

**Numeracy connection:** *Providing multiple representations (e.g. using a fraction and a diagram) scaffolds ākonga understanding.*

**Write the words** urban (town or city) and rural (country area) on opposite ends of a whiteboard (or on pieces of paper on opposite walls of the classroom).

Ask **ākonga to imagine they represent the Māori population** of Aotearoa in 1956 as a group.

Ākonga **position themselves in either the rural or urban area**, based on the statement “By 1956, more than a third of the Māori population (35%) had moved to an urban area.”

**Activity note:** *If space constraints make this activity impractical, adapt it by providing ākonga with a set of 25–30 counters. Ākonga can work in pairs to determine how many counters to position in an urban area and how many in a rural area.*

<sup>3</sup> Benchmark fractions are common fractions that can be used when measuring, comparing, or ordering other numbers or quantities. Benchmark fractions are easy to visualise, which makes them useful for making comparisons. Using benchmark fractions to visualise percentages requires prior knowledge of the [percentage equivalents of common fractions](#).

## Activity 3: Sequence of learning (continued)



Invite ākonga to **explain how they have organised themselves**, comparing the strategies they used to decide how many ākonga should be in each group.

**Numeracy connection:** *Asking ākonga questions such as, “Can anyone build on this idea?” or “Has anyone got a different way to explain how to work this out?” supports ākonga to understand that there are usually multiple ways to use maths to solve problems..*

Use **think-pair-share** to work out how many ākonga, if there were 100 ākonga in the class, would be in the rural and urban areas in 1956 based on the same statement, “By 1956, more than a third of the Māori population (35%) had moved to an urban area”.

**Write ākonga responses** on the board and **discuss any differences**.

**Answers:** *Ākonga might suggest:*

- » 33 out of 100 ākonga would be in the rural category, as this is close to one-third of 100
- » 34 ākonga would be rural, explaining that they rounded one-third of 100 up instead of down
- » 35 ākonga should be positioned in the rural area, basing this on the 35% mentioned in the text.

Use this as a springboard for **discussing how one-third and 35% (35 out of one hundred) are similar but not identical, making connections with the text** that approximates 35% as “more than a third of the Māori population”. This [visualise percentages tool](#) can support ākonga to **make sense of the relative size of different percentages**. Note that you can click on the people icons in the grid to display the corresponding percentage.

**Repeat this exercise** for the statement “A decade later, that number was almost two-thirds (62%).” Check that ākonga know that a decade is 10 years.

**Numeracy connection:** *Being able to use fraction benchmarks to interpret and describe percentages supports ākonga to communicate statistics related to a particular context.*

### Next steps in Numeracy learning

To build on this learning, ākonga could:

- » create their own data display using statistics mentioned in the articles, for example:
  - pie graphs comparing proportions of Māori living in rural and urban areas in 1956 with proportions in 1966
  - using a table to display the data in one of the Māori urban migration graphs
- » explore other types of graphs that show changes over time, for example, time series data
- » explore interactive population density and ethnic diversity data displays on StatsNZ
- » use examples in this [Interpreting fractions and percentages guide](#) to practise rephrasing percentages as approximate fractions, for example, rephrasing a percentage such as “78% of people” to “more than three-quarters of people”.

See the [Numeracy Pedagogy Guides for Social Studies and The Economic World](#) for additional ideas on how to integrate Numeracy learning into your teaching practice.

## Resource A

# Interpreting Fractions and Percentages

Understanding the relative size of common fractions and percentages can support ākonga to be able to interpret the fractions and percentages they encounter in informational texts.

### Understanding fractions

Fractions can be used to describe a part of a whole. The bottom number in a fraction (the denominator) describes how many equal parts something has been divided into. The top number (the numerator) describes how many parts you have. For example,  $\frac{2}{3}$  (two thirds) represents two parts of something divided into three equal parts.



### Percentages are fractions

Although their form is different, a percentage is a fraction with an unwritten denominator of 100. Percent means “out of one hundred” – you can support ākonga to make connections with other words that use “cent”, for example, century, centimetre, and cent (money).

Percentages are often seen in everyday contexts, including in news articles. One reason that they are so widely used is that they are much easier to compare proportions than fractions with different denominators.

Many ākonga will know strategies for converting between fractions and percentages, and most will be familiar with common equivalents such as  $\frac{1}{2}$  equalling 50%. With or without a strategy, it's useful to be familiar with some common fractions and their percentage equivalents.

Fraction	Percentage
$\frac{1}{10}$	10%
$\frac{1}{5}$	20%
$\frac{1}{4}$	25%
$\frac{1}{3}$	33 $\frac{1}{3}$ %
$\frac{1}{2}$	50%
$\frac{2}{3}$	66 $\frac{2}{3}$ %
$\frac{3}{4}$	75%
$\frac{9}{10}$	90%
1	100%

Once learned, these benchmarks can be used to visualise less common percentages, for example, 34% is approximately one-third, and 72% is slightly under three-quarters.

This [visualise percentages tool](#) is an interactive tool that can support ākonga to explore the relative size of different percentages and the relationship between fractions and percentages. Note that you can click on the people icons in the grid to display the corresponding percentage and fraction.

For more information and activities related to fractions and percentages see:

- » [Fraction Benchmarks | NZ Maths](#)
- » [Conversion Cousins - Part 1 | NZ Maths](#)
- » [Conversion Cousins - Part 2 | NZ Maths](#)