Postcodes – Concepts

Introduction

Postcode books are an inexpensive but valuable resource for developing and consolidating numerous educational concepts. Integrated units of work can incorporate Postcode books. Only a limited number of examples are presented here. Most examples are based on the centre page of the current Australia Post booklet. This centre page can be downloaded as a .pdf but the file is large (2.8mb, about 10 min using dial up).

Working with resources such as this is more motivating for students and relates mathematical concepts to real life situations.

COMPARING NUMBERS

- *"Compare the postcodes of Koonda (3669) and Kondut (6605)."*
  - *"What is the difference?"*
  - *"What is the product?"*
  - *"What is the sum?"*
  - *"What is the quotient?"*
  - *"How are they the same?"*
  - *"How are they different?"*
- *"Find the closest number to 6500 in the second column on page 25."* (Coojan)

ESTIMATION

- *"Estimate the total number of postcodes in the first column on page 24."*
- *"Estimate the total number of postcodes on page 24."*
- *"Estimate the total of all the digits in the last column of page 25."*
- *"Estimate the number of letters in the second column on page 25."*
- *"Estimate the total of the last five postcodes on page 24."*
- *"Estimate the number of NSW postcodes in the third column on page 25."*
- *"Estimate in mm the height of page 25."*
- *"Estimate in cm the length of the diagonal of page 25."*
- *"Estimate in cm^2 the area of page 24."*

EXPANDING AND CONTRACTING NUMBERS

- *"Expand the postcode of Killarney."* (4000 + 300 + 70 + 3)
- *"Expand it using index notation."* $(4 \times 10^3) + (3 \times 10^2) + (7 \times 10^1) + (3 \times 10^0)$
- *"Contract this number and find the town in the second column on page 24 60 + 800 + 9 + 3000."* (Jumbuk)

FRACTIONS, DECIMALS & PERCENTAGES

- *"What fraction of the digits in the postcode of Konnongorring (6603) are sixes?"* (2/4 or 1/2)
- *"What decimal of the digits in the last twenty-five postcodes in the third column of page 25 are 3's?"* (0.13)
- *"What percentage of the letters in Kogarah Bay are a's?"*

GRAPHS & DATA

- *"Make a histogram of the number of postcodes for the different states on page 25."*
- *"Make a frequency polygon from the data you collected when you made a tally of the number of postcodes listed under the letters of the alphabet."*
- *"Make a frequence polygon of each of the numbers 1 to 9 in the postcodes in the last column of page 24."*
- Once the graph is constructed a study can be made of the measures of central tendency e.g. mode, median, mean, standard deviation.

INDEX NOTATION

- *"Write the postcode for Kaniva (3419) in expanded form using index notation."* $(3 \times 10^3) + (4 \times 10^2) + (1 \times 10^1) + (9 \times 10^0)$
- *"Find the name of the town that has a postcode matching the contraction of* $(7 \times 10^3) + (5 \times 10^1)$*."* (Kingston TAS)

LARGEST AND SMALLEST NUMBER

- *"What is the largest number you could make from the digits in the postcode for Kingsholme (4208)?"* (8420)
- *"What is the smallest number you could make from the digits in the postcode for Kendall (2439)?"* (2349)

NUMBER

- Students can search within the four digit postcodes for different categories of numbers e.g. odd, even, square, prime, composite and triangular.
- *"How many even numbers are in the first ten postcodes on page 25?"*
- *"On pages 24 & 25, how many square numbers can you find within the four digit numbers?"*

NUMBER FACTS

- Students can search within the four digit postcodes to find the answer to questions relating to number facts.
- *"What town has a postcode that contains the answer to 3 x 5?"*
- The same type of question can be asked for a variety of number facts e.g.
- 7 x 9, 9 – 5, 12 ÷ 4, 45 ÷ 9, 8 + 8 etc.
- Students can progress in order of difficulty e.g. 50 x 4, 4200 ÷ 6, 100 – 54,
- 80 + 70 etc.

OPERATIONS

- *"What is the sum of the digits in Kincora?"* (18)
- *"What is the sum of the first five postcodes on page 24?"* (21 608)
- *"Find two postcodes where the quotient would be a whole number."*
- *"What is the difference between the postcodes of Kingston QLD (6415) and Korbel (4114)?"* (2301)

ORDERING NUMBERS

- *"Order from largest to smallest the last five postcodes in the last column of page 24."*
- *"Order from smallest to largest the digits in the firs four postcodes in the first column of page 25."*
- *"Cut our the last ten postcodes on page 24 and past them into your book in order, largest to smallest."*

PATTERNS

- *"What patterns can you find in the town names or numbers?"*
- (Karrakatta, Ki Ki, Kawl Kawl)

PLACE VALUE

- *"Name a town that has a three in the hundreds place of its postcode."* (Koorgang, 2304)
- *"Name a town where two zeros in its postcode are used as place holders."*
- *"Divide the postcode of Koonawarra (2530) by 100 and write it down."* (25.3) If students retain the unnecessary zero it would be a good opportunity to review the concept of necessary and unnecessary zeros.

PROBABILITY

- *"If you cut out the first ten postcodes in the last column of page 25, placed them in a bag, closed your eyes and selected one, what would be the chance of choosing:"*
  - *"A NSW postcode?"* (2:10, 1/5, 0.2)
  - *"A postcode containing a three?"* (0.6)
  - *"A postcode ending in a seven?"* (1 in ten)
  - *"Would you be likely to choose a Tasmanian postcode?"*
  - *"Would you be more likely to choose a postcode beginning with a 6 than one beginning with a 5?"*
  - *"True or false, you would have an equal chance of choosing a postcode from NSW and QLD?"*

RATIO

- *"What is the ratio of NSW to QLD postcodes in the first ten towns on page 25?"* (6:2 or 3:1)
- *"What is the ratio of a's to e's to r's in the name of the town with the postcode of 2619 in the first column of page 24?"* (2:2:4 or 1:1:2)

ROMAN NUMERALS

- *"Write the postcode for Koolewong (2256) in Roman Numerals."* (MMCCLVI)

SEQUENCES

- *"Find postcodes in which you can find sequences. The sequence should have at least three steps. Continue the sequences four more steps."*
- (Karara (4352) 4, 3, 5, 2, … 6, 1, 7, 0)
- (Kerrabee (2328) 2, 3, 2, 8, … 2, 13, 2, 18)
- (Koolunga (5464) 54, 64, … 74, 84, 94, 104)

SORTING AND CLASSIFYING

- *"Discover five different ways of sorting the first ten postcodes in the second column of page 24. Write down you groupings and explain the way you sorted them."*
- *"The towns are already sorted in alphabetical order. Can you think of other ways the towns could be sorted?"*

SYMMETRY

- *"What letter or number symmetry can you find on pages 24 and 25?"* (Glenelg, 4114 (Kingston Qld))

TALLYING

- *"Tally the postcodes for the different states on page 24."*
- *"Tally the digits 0 to 9 in the first column of page 25."*
- *"Organise yourselves and tally the total number of postcodes listed under each of the letters of the alphabet in the booklet."*

TESTS OF DIVISIBILITY

- Is the postcode for Kin Kora (4680) divisible by 3? (Yes)
- How many postcodes in the last column on page 25 are divisible by 5? (23)
- Find a postcode on page 24 that is divisible by nine. (Keilore East, 3033)

DEVELOPING LANGUAGE SKILLS

Various language skills are naturally incorporated into many of the exercises above:

Reading
Syllabification
Alphabetical order
Dictionary skills
Listening
Following directions
Auditory memory
Pronunciation
Spelling

MAPPING SKILLS

When I was teaching I was able to get maps of different scale for Queensland from the RACQ (Royal Automobile Club of Queensland). I was able to get enough so that my students had one each. If you could get one between two it would be good. I then linked the postcode activities with mapping skills, using maps of Brisbane and Queensland. Once I had the resources I could teach mapping skills such as:

Scale and distance
Bearings
Map reading
Compass skills
Cardinal points
North point
Grid references
Choosing the shortest route
Mapping symbols
Travel time calculations
National Parks
Reading contour maps
Drawing simple maps