



# Place Value - 4

## 2.4.3

Word Wall:

### Introduction

Students will partition numbers into hundreds, tens and ones, using standard and non-standard partitioning and zero as a place holder

### Resources

- Tiny ones, tens and hundreds or MAB materials
- Place Value arrows
- Mini-whiteboard
- Show me pocket frame



### Time / Classroom Organisation

This activity may be introduced in a small or whole group format. Allow 20-30 minutes. MAGs 1.3.5 and 2.2.3 are pre-requisites to this activity. Repeat often using different materials (for example bundle sticks) and allowing students to represent their understandings in a variety of ways. Increase the numbers as students are ready.

### Australian Curriculum Year level Two

Group, partition and rearrange collections up to 1000 in hundreds, tens and ones to facilitate more efficient counting (ACMNA028)

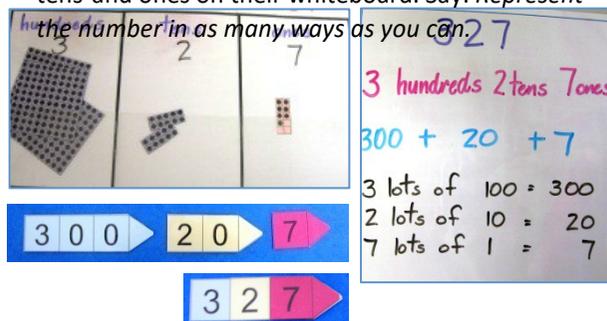
### Proficiency Strand:

Understanding – partitioning and combining numbers flexibly

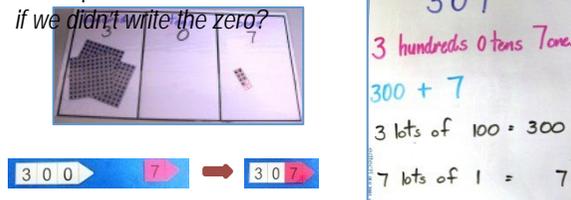


### Activity Process---Zero as a place holder

1. Write a three-digit number on the board, for example: 327
2. Ask the students to represent this amount with tiny hundreds, tens and ones. Write how many hundreds, tens and ones on their whiteboard. Say: *Represent the number in as many ways as you can.*



3. Ask: *What if we take the two tens away?* Represent this number using the tiny hundreds tens and ones. How would we write this number? Use the place value arrows to check the response. Ask: *Would the number have the same value if we didn't write the zero?*

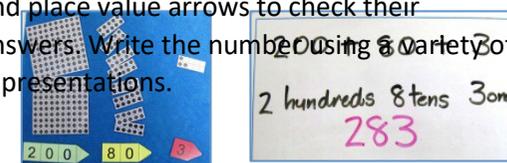


4. Reinforce the understanding that zero is used as a place holder. It indicates there is none of a particular quantity and holds the other digits 'in place'; for example, 27 means 2 tens and 7 ones, but 207 means 2 hundreds, 0 tens and 7 ones.

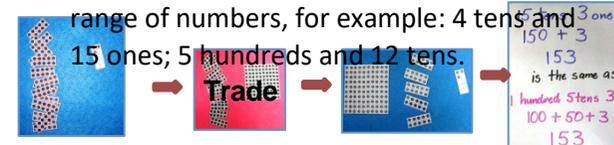


### Activity Process- Non-standard partitioning

1. Give each student a collection of Tiny 100s, 10s and 1s. Allow the students count by 10s or 100s, or trade them in as necessary.
2. Begin with students identifying the number using standard partitioning, for example: *I have made a number using 2 hundreds, 8 tens and 3 ones. What is my number?* Allow students to use tiny hundreds tens and ones and place value arrows to check their answers. Write the number using a variety of representations.



3. Introduce non-standard partitioning. Say: *I have made a number using 15 tens and 3 ones. What is my number?* Support students in trading 10 tens for 1 hundred. Ask students to represent the number as many ways as they can. Repeat the activity using a range of numbers, for example: 4 tens and 15 ones; 5 hundreds and 12 tens.



4. Repeat the above process using the following challenges:
  - *I have no tens in my number but I have 4 ones and 7 hundreds. What is my number?*
  - *My number is a ten greater than 394. What is my number?*



Catholic Education  
Diocese of Cairns

Learning with Faith and Vision

- I took 2 (ten frames to represent a three--digit number. What might my number be?
- I have (ten frames with a value of 162, but I didn't take any hundreds. Which (ten frames might I have used?

Source: Baker, J. & Baker, A. 2006. *Natural Maths Strategies Book 3*. Blake Education: Clayton. p100.

### Variations & Extensions

#### 1. Cross the River

Resources: [Cross the River worksheet and cards](#); markers;

Place Value Chart with Hundreds, tens, Ones; MAB; deck of

cards with the tens and picture cards removed. Cut out the activity cards, shuffle them and place face down in a stack. Students pick up the top card; read the number aloud; find the stepping stone with that number and cover it with a marker.

#### Questions/Hints

If the student reads the number correctly (e.g., two hundred and seventy--five) but covers the wrong stepping stone (e.g., 20075), then have him/her show 275 on a PVC with MAB and use a playing card to represent the digit in each place. Then ask him/her to find the stepping stone that has the same number as shown by the cards.



Source:

[http://www.dest.gov.au/literacynumeracy/innovativeprojects/baturo\\_train\\_maths\\_tutor/appendixa.htm](http://www.dest.gov.au/literacynumeracy/innovativeprojects/baturo_train_maths_tutor/appendixa.htm)

#### 2. Mastermind place value game

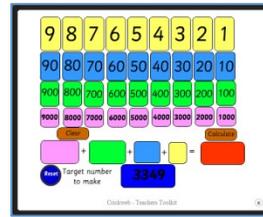
Resources: Grid with columns for hundreds tens and ones

0 = right number in wrong position,  
X = number not used,  
√ = correct number correct position

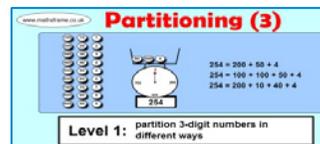
Hundreds	Tens	Units
2	1	5
X	X	0
4	8	6
0	0	X
3	4	0
√	√	X
3	4	5
√	√	X
3	4	9
√	√	√

### Digital Resources

<http://www.crickweb.co.uk/ks2numeracy-tools.html>



[http://www.mathsframe.co.uk/resources/Partitioning\\_3.aspx](http://www.mathsframe.co.uk/resources/Partitioning_3.aspx)



### Contexts for Learning

#### Play:

*Tiny hundreds tens and ones race:* Ask students to line up in two lines behind a place value show me frame, and a collection of tiny hundreds, tens and ones. The teacher calls out a three- digit number, for example, 372. The first two students race to build that number with the tiny hundreds tens and ones on their place value show me frame. On the board, score the winner on a team tally. Continue until all students have had a turn.

#### Investigation:

Use [milk bottle tops with 100s 10s and 1s](#) written on top. Give students the challenge: *I took three bottle tops. I made a three- digit number with zero in the tens position. What might my number be?*

#### Real life experience:

*Changing Places:* The teacher prepares three series of numbers from 0 to 9 on A4 paper, and gives one number to each pupil.

Teacher starts asking the named pupil to step in front of the blackboard showing to the rest of the class the number given. The teacher writes on the board at the head of each pupil the corresponding order: units, tens, hundreds. Name the number.

Ask which pupils will have to change position if I add 2 tens, or I want the number 340. With every change, say the new number.

#### Routines and Transitions:

Match numbers cards which have standard and non-standard partitioning.

#### Assessment

*Lollies/Candies/Sweets* - Source: Steps Professional Development. *First steps in Mathematics – Number Course Book*. ECU: Churchlands, W.A. p 49

- This task explores students understanding of the meaning of the individual digits in a two digit number when confronted by both standard and non-standard groupings of objects

**Achievement Standard:** count to and from 1000

#### Background Reading

Place value is the key to understanding how we say, read, write and calculate with whole numbers..... Students have to understand the following important characteristics of our place-value system.

- The order of the digits makes a difference to the numbers, so 28 is different from 82
- The position (or place) of a digit tells us the quantity it represents; for example, in 3526, the 2 indicates 2 tens or 20; but in 247, the 2 indicates 2 hundreds or 200.
- Zero is used as a place holder. It indicates there is none of a particular quantity and holds the other digits 'in place'; for example, 27 means 2 tens and 7 ones, but 207 means 2 hundreds, 0 tens and 7 ones.
- There is a constant multiplicative relationship between the places, with the values of the positions increasing in powers of ten, from right to left.

- To find the quantity that a digit represents, the value of the digit is multiplied by the value of the place; for example, in 3264, the 2 represents 200 because it is  $2 \times 100$ .

These characteristics are developed sequentially.

Source: *First steps in Mathematics – Number: Whole and Decimal Numbers/Fractional Numbers*, 2010.

Rigby: Port Melbourne. P52.

#### **Year three NAPLAN Numeracy test links**

- Place Value

#### **Links to Related MAGs**

2.2.1 Numbers to 1000---2

2.2.3 Place Value – 2

2.3.3 Place Value – 3

3.1.3 Place Value---1

