Place Value 3

2.3.3

Word Wall: *place value, number names, increase by, decrease by , frame, pocket,*

Introduction

Students will partition numbers into hundreds, tens and ones, and regroup collections as necessary as a quantity is added.


Resources

- Tiny ones, tens and hundreds
- Place Value arrows
- Mini---whiteboard
- Digits
- Show me pocket frame
- Place value dice – 100s, 10s, 1s.
- FISH kit



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

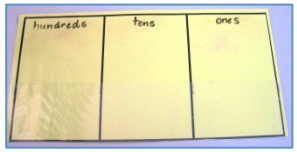
Group, partition and rearrange collections up to 1000 in hundreds, tens and ones to facilitate more efficient counting (ACMNA028)

Proficiency Strand:

Understanding – partitioning and combining numbers flexibly

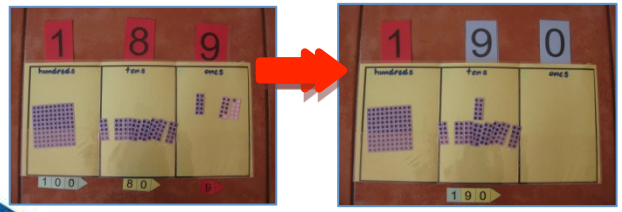
Activity Process--- Place Value chart

1. Write hundreds, tens and ones (or use sticky notes) on the columns of the show---me frame place value chart.

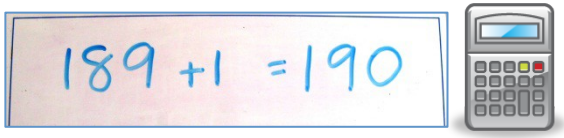


2. Write a 3---digit number on the board, for example: 189
3. Ask the students to represent the number using tiny hundreds tens and ones frames. Place the digit to show how many hundreds, tens and ones on top of the frame. Place the corresponding place value arrow beneath the frame.

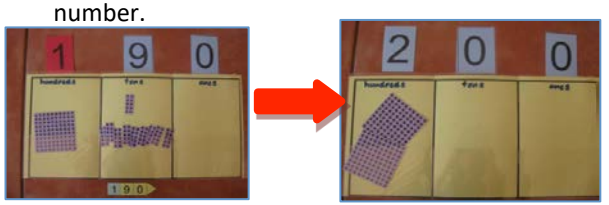
4. Ask: *If we added 1 more to this number, which number would change?*
5. Add a tiny ones frame with one dot to the nine dots. Exchange the 9 and 1 for a ten frame and move to the tens column. Change the digits and place value arrows accordingly



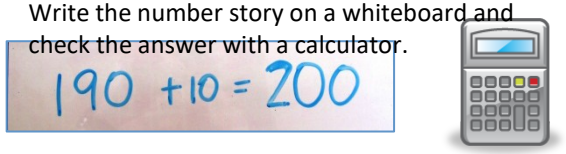
6. Write the number story on a whiteboard. Check the answer using a calculator.



7. Ask: *If we add 10 to the number, which number would change?*
8. Add a tiny ten frame to the tens column and count up how many. Change ten of the many ten frames for a hundred frame and move to the hundreds column. Adjust the digits and place value arrows to represent the new number.



9. Write the number story on a whiteboard and check the answer with a calculator.



10. Students continue the activity rolling a place value die (ones or tens) and adding this amount to their collection. Repeat the activity using subtraction situations.

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Variations & Extensions

1. The value of three

Resources: newspapers, magazines, telephone books, catalogues

Search through the newspaper, magazine, catalogues or telephone book for numbers with three in the hundreds column. For example: 345, 357, 351. List at least ten numbers. Order the numbers from lowest to highest in value. Place the numbers on a number line.

Source: Andrea Hillbrick, 2005. *Tuning In with Task Cards*. Curriculum Corporation: Carlton South, Vic. P 71

2. Race to and from 200

Resources: Place value board with hundreds, tens and ones (or show---me frame); place value dice; hundreds tens and ones

In pairs, students take turns to roll one of the place value dice beginning with the ones. They collect that number of ones and place these on the place value board in the ones column. The next student then rolls the tens die. After each roll the students add the appropriate number of tens or ones frames. The total number of frames in each column is checked and regrouped as required, for example: when there are 10 ones they are exchanged for a ten frame; when there are 10 ten frames, they are exchanged for a hundred frame.

After the idea of trading is established, student could record the total number of sticks on the place value board after each roll.

The game is finished when the students reach 200.

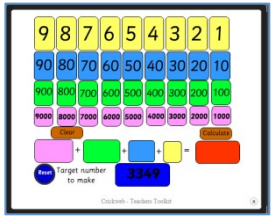
A variation is to start at 200 and subtract the tens and ones.

Source: http://k6.boardofstudies.nsw.edu.au/files/maths/maths_k6_ws.pdf p46

Digital Resources

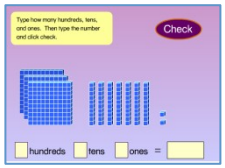
http://www.crickweb.co.uk/ks2numeracy-tools.html

Place Value Calculator



http://www.hbschool.com/activity/numbers_to_1000/

MAB materials –
Guess the number



Contexts for Learning

Play:

Target Practice Place Value

Game: Place Value Target Game

Source: *E deVries, 2008*

Investigation:

Select a three---digit number. Write clues for it and then create a WANTED number poster.

Source: Baker, J. & Baker, A. 2006. *Natural Maths Strategies Book 2.* Blake Education: Clayton. P 69.

Real life experience:

Write a three---digit computer password that includes a 6. Create a top---ten list by recording the ten possible passwords. Select one password and write clues for a friend to guess it.

Source: Andrea Hillbrick, 2005. *Tuning In with Task Cards*. Curriculum Corpora/on: Carlton South, Vic. P 80

Routines and Transitions:

Use the scooter quest as a transition activity: Find the value of a digit in a three---digit number.

http://www.sheppardsoftware.com/mathgames/decimals/scooterQuestDecimal.htm

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Assessment

Say a three---digit number and ask students to represent this number using place value arrows. Students record this number using hundreds tens and ones, expanded nota/on and numeral.

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 2x100.

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

1.3.5 Place Value – Renaming
2.1.3 Place Value – 1
2.2.1 Numbers to 1000---2
2.2.3 Place Value – 2
2.4.3 Place Value – 4