Multi-based Arithmatic Blocks beyond 120:
Scaffold the mathematical idea to above 120 using a tens and ones proforma.

Background

To scaffold the mathematical idea to above 120 we need to use multi-based arithmetic blocks (MABS) and repeat the same process using a tens and ones proforma. Using the tens and ones proforma students play a game called 'Make a flat'. It involves exchanging 10 ones into 1 ten and the winner is the first to reach 100.

Use one ten- sided dice. Change the game by starting with a flat; subtract the number shown on the dice.

To extend to 1000, students are given a hundreds, tens and ones proforma. Two different games can be played:

- Dice throw 'Make Block' : Links to action of addition
- Dice throw 'Break a Block' : Links to action of subtraction

In this game you use 2 ten sided dice and MABs

What mathematics education is happening here?

After many experiences playing the two games the scaffolding process is the same as for the tens and ones games. Using the MABs students keep a continuous total using drawings and either the addition algorithm or the subtraction algorithm to show the progress of the games with symbols.

HUNDREDS	TENS	ONES

Name: _____ **Strategy:** MABs one dice throw

Date: _____ **Worksheet:** Addition

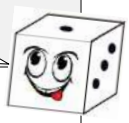
Remember to develop the **action before abstraction**. (Korbosky 2014).

The steps:

1. Throw a ten sided dice
2. Collect the number of MABs to match the number on your dice
3. Draw the number of MABs to match your number.
4. Now write using numbers how many MABs you have, add the drawing and written amounts to get your answer.
5. Throw the dice again and see how you go! EASY!

Throws	Draw how many you have	Draw the number you collected this turn	Write the total number of MABs you have	Calculate how many MABs you have
FIRST	 I rolled 8 on my **first turn**!		8	*You haven't got anything to calculate yet, it's only your first go.*
SECOND	 I rolled a 3 on my **2nd turn**!		3	8 +3 11

Psst... Add together the MABs in your drawings to get the answer



Throw #	Draw how many you have	Draw the number you collected this turn	Write the total number of MABs you have	Calculate how many MABs you have
FIRST	*You haven't rolled yet, go on, pick up the dice and get rolling*			*You haven't got anything to calculate yet, it's only your first go.*
SECOND				
THIRD				
FOURTH				

Throw #	Draw how many you have	Draw the number you collected this turn	Write the total number of MABs you have	Calculate how many MABs you have
FIFTH				
SIXTH				
SEVENTH				
EIGHTH				
NINETH				
TENTH				
ELEVENTH				
TWELFTH				

 e: richard@dapma.com.au w: www.dapma.com.au