

SCAFFOLDING NUMERACY IN THE MIDDLE YEARS

A NEW USE FOR AN OLD TOOL - CUISENAIRE¹

One of the big challenges in developing multiplicative thinking is:

helping students move from counting all groups as in the traditional 'tables', that is,

1 x 3
2 x 3
3 x 3
4 x 3

to working with the same number of groups, that is,

3 x 1
3 x 2
3 x 3
3 x 4



which involves a different number of groups of the same size (GROUPS OF)

which involves the same number of groups irrespective of size (ARRAY/REGION IDEA → FACTOR IDEA)

One of the ways we've found to support the development of more efficient mental strategies for the multiplication facts based on the array or factor idea is to use Cuisenaire Rods to model the number of groups in a way that prevents counting by ones.

We suggest you label each of the longer sides of the Cuisenaire Rods as shown in the Master Copy attached. Orient students to the rods by getting them to pull out a handful and add them up as quickly as possible – this provides a very good review of addition strategies.

Students then take it in turns to toss 2 ten-sided dice.

Depending on the throw and what the student decides to do with it, he/she collects the appropriate number of rods. For example, if 6 and 8 were thrown, students could decide between 6 eights or 8 sixes.

In the photo (courtesy of Eskdale Primary School), the student has selected 6 eights. The rods invite a regrouping of the number of rods to show 5 eights (40) and 1 more eight (48).



This makes it easier to use known facts and helps develop accuracy, speed and flexibility in renaming the number of groups (an alternative arrangement here could have been 3 eights and 3 eights (24 and 24, 48)

We would encourage you to explore the possibilities of using Cuisenaire in this way. For instance we would be interested to see if it was possible to use the rods to play a modified version of "Multiplication Toss". Please let us know how you go.

¹ These activities were trialled at Eskdale Primary School, Victoria.

Master Set of Labeled Cuisenaire Rods:

