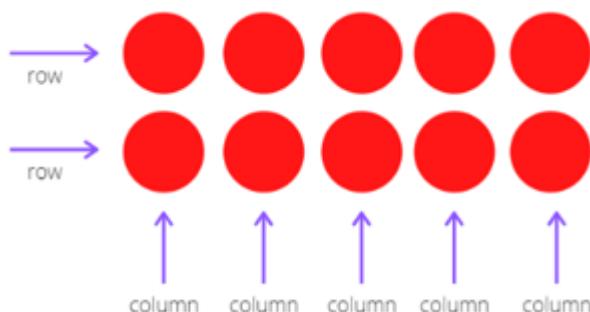


Multiplication: Recognise an array as 'two fives' etc

Below is an example of an array (two fives). This is the building block for multiplication as it shows the groups that they will eventually be multiplying. When we multiply, we are adding the same amount each time. An array will show the child what number they are adding and how many times they need to add it.



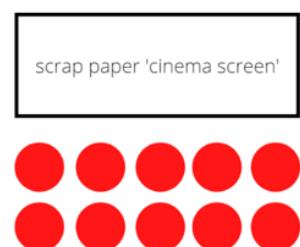
This array shows $5 + 5 = 10$ ($2 \times 5 = 10$) AND $2 + 2 + 2 + 2 + 2 = 10$ (5×2)

Cinema Seating

Use a scrap piece of paper as a 'cinema screen'. You can ask the child to draw a quick picture for the film. Now use the counters as people in the cinema and put them in front of the screen in rows and columns (see example below).

- How many people are watching the film?
- How many rows of people are there?
- How many columns of people are there?

So there are 2 rows of 5 OR 5 columns of 2. Write this out as a repeated addition.



Repeat this with a different number of people in the cinema until the child is confident with the language.

Tens Frame

Use the tens frame below and place counters in an array (eg 2 rows of 3).

- How many counters are there? (6)
- Show me a row. (Often children are confused between rows and columns. A reminder is "you read rows of letters".)
- How many rows are there? (2)
- Show me a column. ("Columns go up and down". Have they heard of Nelson's column?!)
- How many columns are there? (3)
- What can you tell me about the rows and columns and the total of 6 counters? 2 rows of 3 makes 6.

Write this down as an addition on the whiteboard and then as a multiplication:
 $3 + 3 = 6$ and $2 \times 3 = 6$ (because there are 2 rows of 3)

Now turn the tens frame 90 degrees (ie horizontal to vertical).

- What can you tell me about the rows and columns now? There are 3 rows of 2.
- Has the total changed? No

So 3 rows of 2 also makes 6.

Write this as $2 + 2 + 2 = 6$ and $3 \times 2 = 6$ (because there are 3 rows of 2)

Number Sentences

When you have looked at an array, try writing it as a number sentence. The child may want to write 2 rows of 5 as $2+5$. Look carefully at the array and explain that they are adding the two rows together so it would be $5 + 5 = 10$.

- What else could the number sentence be?
- Is there another way of recording it?

Make Your Own

Give the child some objects (counters, Dienes, blocks) and ask them to make you an array. This will help you to know if the child has understood what an array needs to look like (rows of equal numbers and columns of equal numbers).

- Can you describe this array to me?
- What is the total?
- Can you write it as a number sentence?
- Can I add 1 to just the first row?
- What would happen to the array if I added 1 to EACH row?

Is this the only array I could make for this total? (Eg, if the total is 12, you can make arrays of 1 row of 12, 2 rows of 6, and 3 rows of 4, and of course you can turn these to make 12 rows of 1, 6 rows of 2, and 4 rows of 3.)

A fun short video “Multiplication Kumquats” – you could do this live with the child.

Go to the website and find the fifth item down: “Multiplication Factors”

<https://mathvisuals.wordpress.com/multiplication-division/>

Tens Frame

