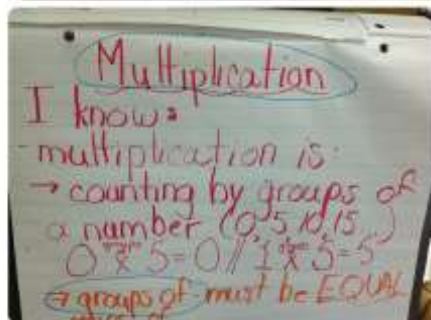
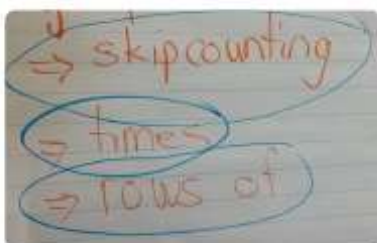


Co-create Criteria by asking, "What do we know about Multiplication?"

- We know how to skip count
  - Children get up and skip
  - Practice counting by 5s
- We know that the groups must be equal
- We know what equals means
- We can use words such as rows of, groups of, times...

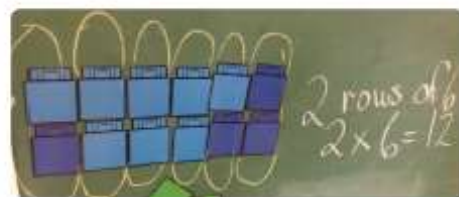


Children at desks...

- What is a quilt? Show an example(s).
  - Lets make a quilt for a worm!
  - Use all of the 12 tiles on your desk.
  - Our number story will be a quilt of 1 row with 12 tiles in the row or  $1 \times 12 = 12$



The adult worm quilt



The baby worm quilt



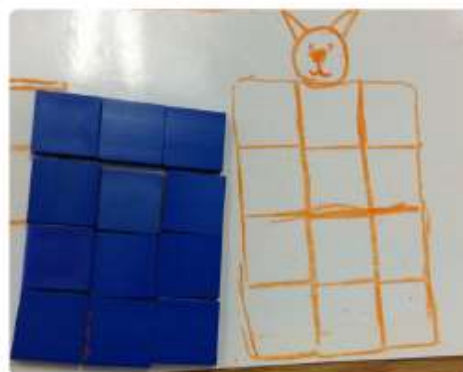
- Now make a quilt for a baby worm exactly half the size of the adult worm, but use all of the tiles
- Our number story for the baby worm quilt is 2 rows of 6 tiles, or  $2 \times 6 = 12$ 
  - Is it easier to skip count or multiply by 1s or 2s?
- If each square is 1 cm, how long is the adult worm quilt? The baby worm quilt?
- How wide is the adult worm quilt? The baby worm quilt?
- So what would be the dimensions of the quilts be?

Connect skip counting /multiplying, number lines patterns, doubling/halving, dimensions/ factors through class discussion and activity.



Last task...

- Build a quilt using all of your tiles for an animal of your choice
  - It must have equal groups!
- What's the story problem for it?
- Let the students have fun imagining and creating a variety of quilts of various dimensions for different-shaped animals - but they must use 12 tiles to create their quilts.
- Examples:
  - Four rows of three.
  - $4 \times 3 = 12$ . My quilt is for my dog.
- What's the story for this one?
  - Three rows of four.
  - $3 \times 4 = 12$ . My quilt is for my monkey!



We will summarize and add more to our poster about multiplication poster:

We know that multiplication is:

- skip counting to count more quickly
- equal groups of
- equal rows of
- we can show it on a number line
- the dimensions are our factors
- we use x as a symbol for multiplication and say groups of, rows of, times, multiplied by for the symbol
- we can sometimes get to the same product with different factors ( $1 \times 12$ ,  $2 \times 6$ ,  $3 \times 4$ ,  $4 \times 3$ ...)

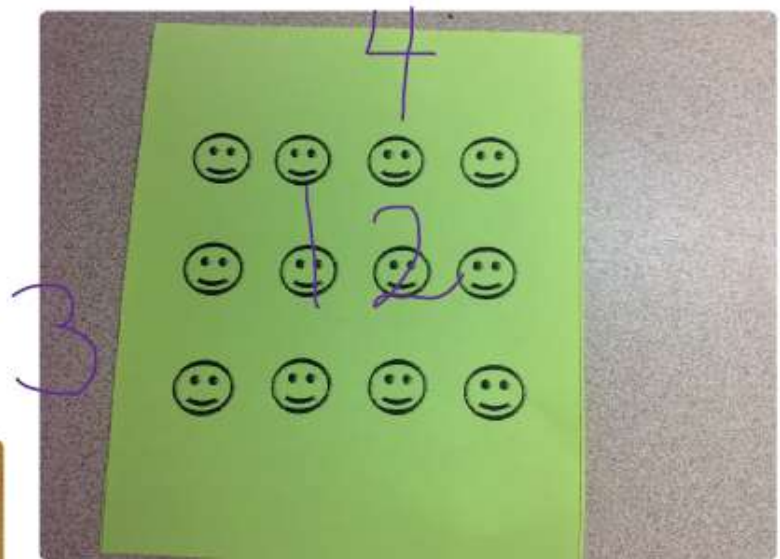
To challenge students next, get them to create quilts of 24, 36, 48 or 60 !

In order to continue to build the array (rows model) of multiplication, have students find and create arrays. Use them as a visual model.

3 rows of 4 = 12

3 by 4 happy faces = 12

$3 \times 4 = 12$

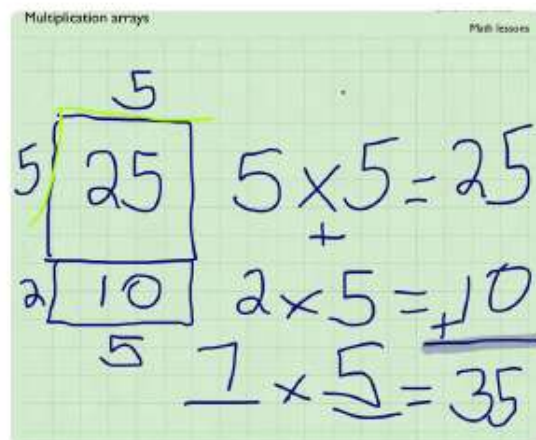


Our ant array- see LRC kit

What is  $7 \times 5$ ?

We can partition the 7 into 5 and 2.

$5 \times 5 + 2 \times 5 = 35$



The array model can then easily be grown into the distributive model.

The array model can also be used to create strong ties to division:



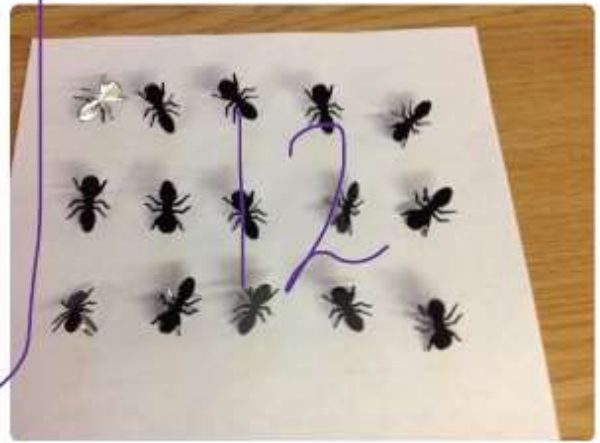
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3



Multiplication array

3



Division in an array model

Our factors in multiplication become the divisor and the quotient. The product becomes the dividend in a division question.

This explains why our multiplication table is also a division table!