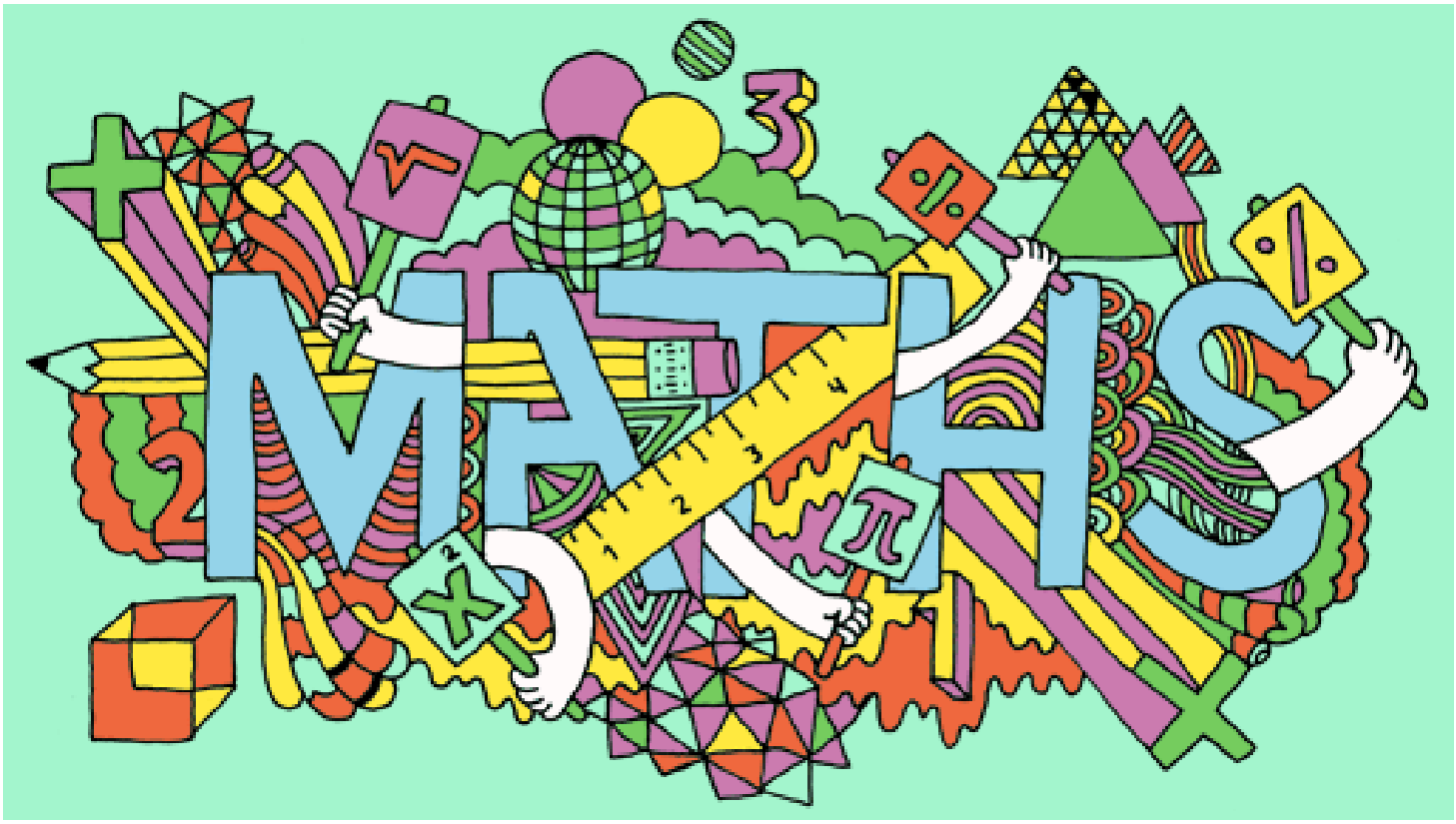
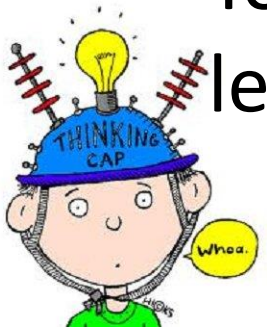
Marvellous Maths



Multiplication and Division

Aims of this morning:

- To share some key concepts and vocabulary involved in multiplication and division.
- To share some practical resources and games used to support learning.
- To join your child in the classroom to see learning in action!



Multiplication and Division

Children are taught to understand multiplication as:

- **Repeated addition**
- **An array**
- **Scaling**
- **The inverse of division**

Children are taught to understand division as:

- **Equal sharing**
- **Grouping**
- **Repeated subtraction and addition**
- **The inverse of multiplication**
- **Linking to fractions**

What is multiplication all about?

Can you build this calculation?

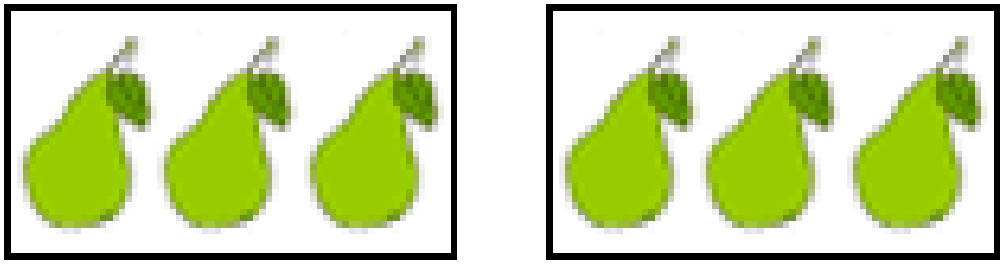
$$2 \times 3 = 6$$

Can you draw a picture and write a problem for it?

Do you know what **multiplicand and multiplier** mean?

What is multiplication all about?

$2 \times 3 = 6$



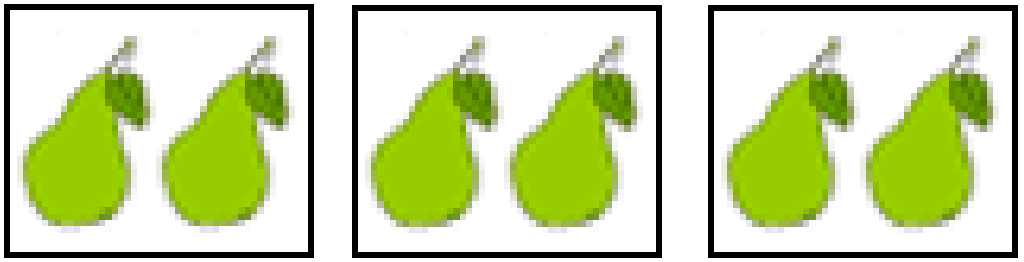
2 groups of 3

The multiplicand is 3.

The multiplier is 2.

What is multiplication all about?

$2 \times 3 = 6$



2 multiplied by 3

The multiplicand is 2 .

The multiplier is 3.

Multiplication

Key vocabulary

The **multiplicand** is the size of the group.

The **multiplier** is the number of groups.

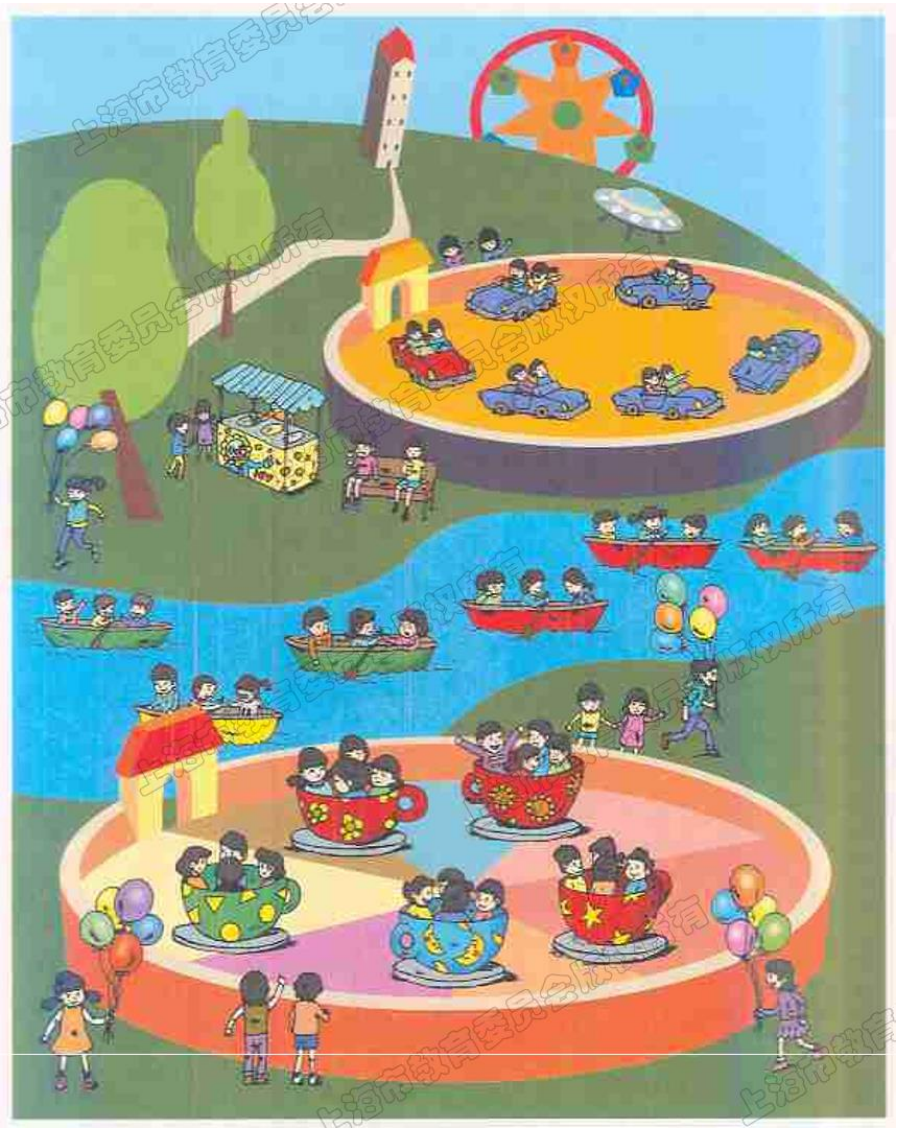
The **product** is the total number of objects in all.

Key Vocabulary

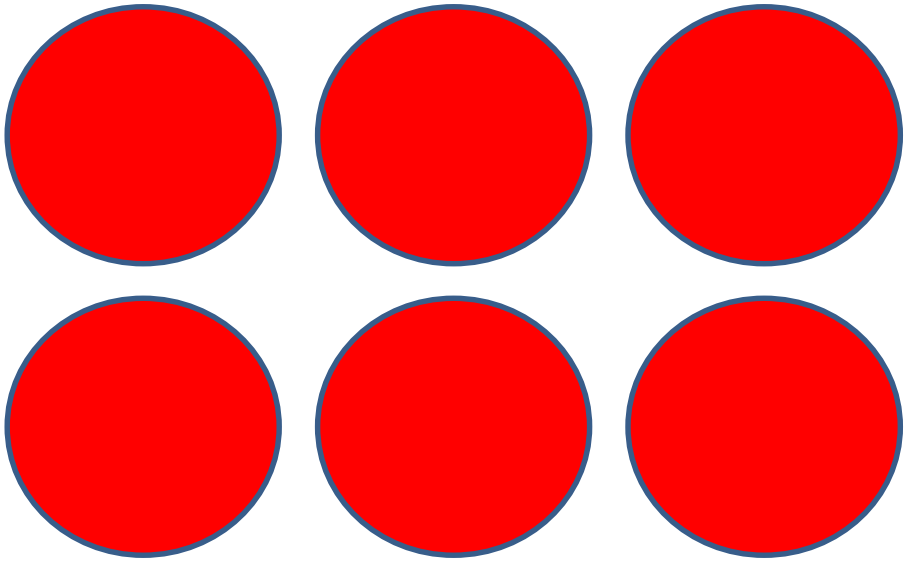
$$2 \times 3 = 6$$

Factors is another word we use to talk about the **2** and **3** in this equation.

Multiplication



Arrays



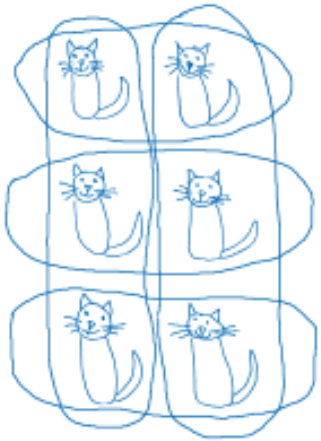
Multiplicand, multiplier and product

What can you see?

Multiplication

Arrays

Arrays are a great way to show that multiplication can be done in any order (commutative law) and will prepare children for using the grid method later on. Look out for real life examples!



2 x 3 = 6

or 3 x 2 = 6

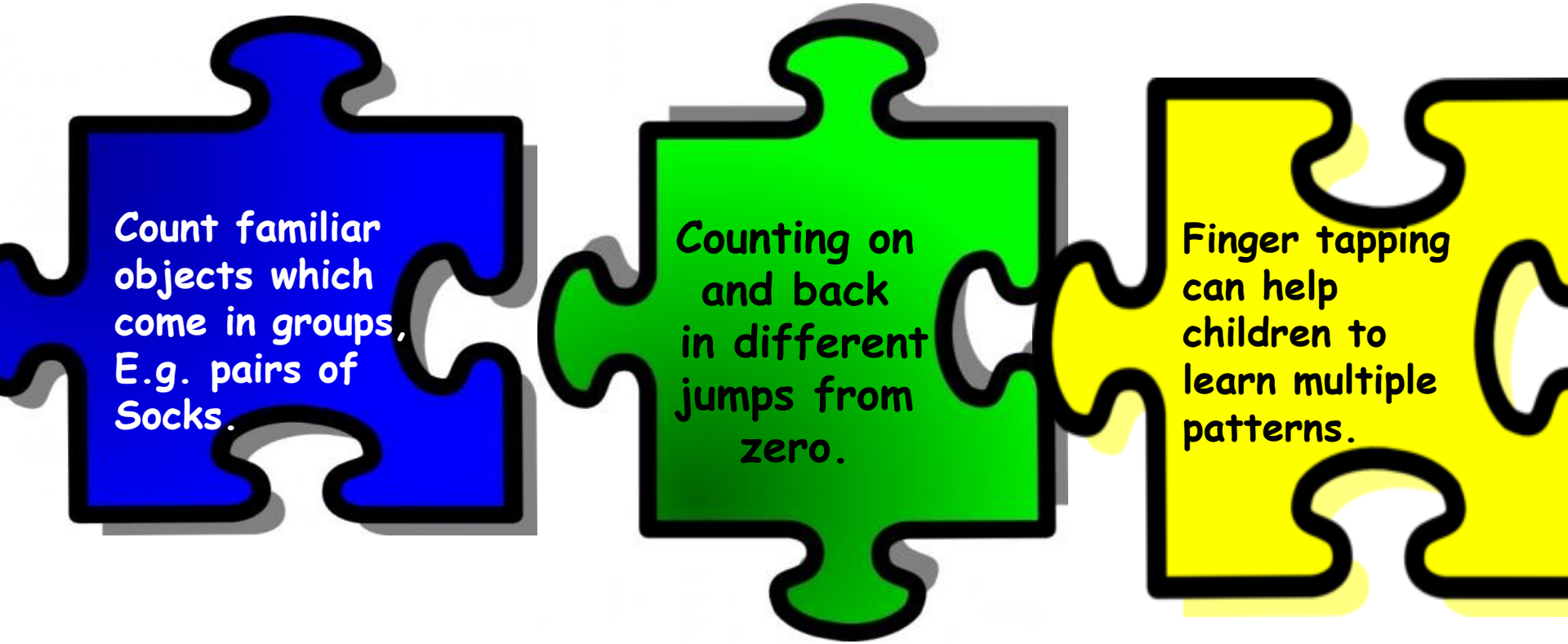
4 x 3 = 12

or 3 x 4 = 12

So how can we help our children to be fluent in recalling their multiplication and division facts?

Skip Counting

Being able to count on and back in groups



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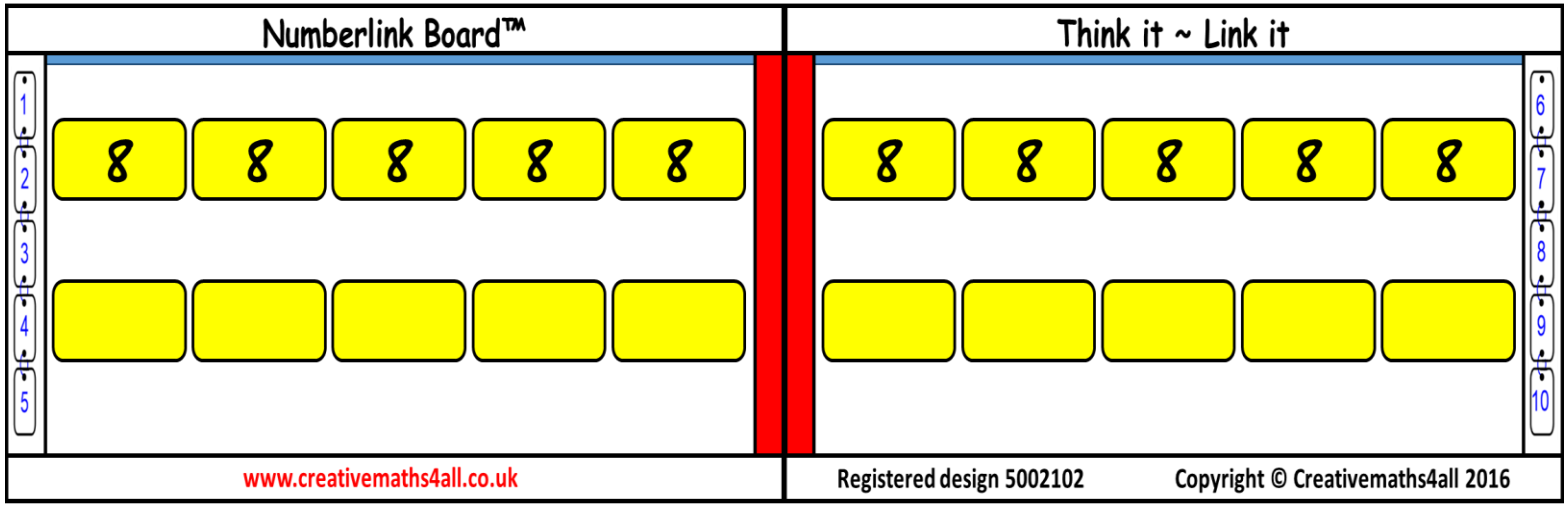
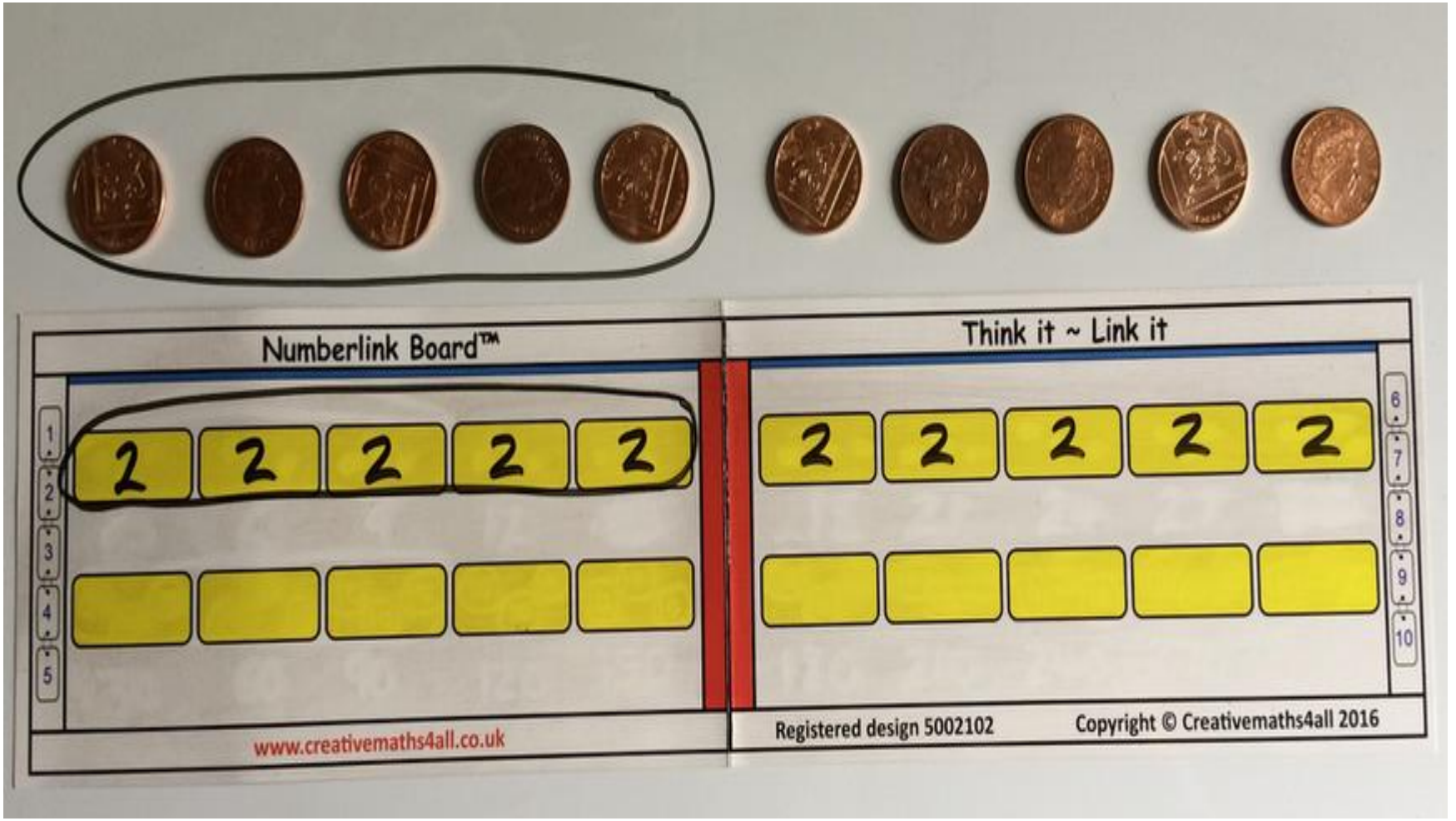
The Numberlink Board

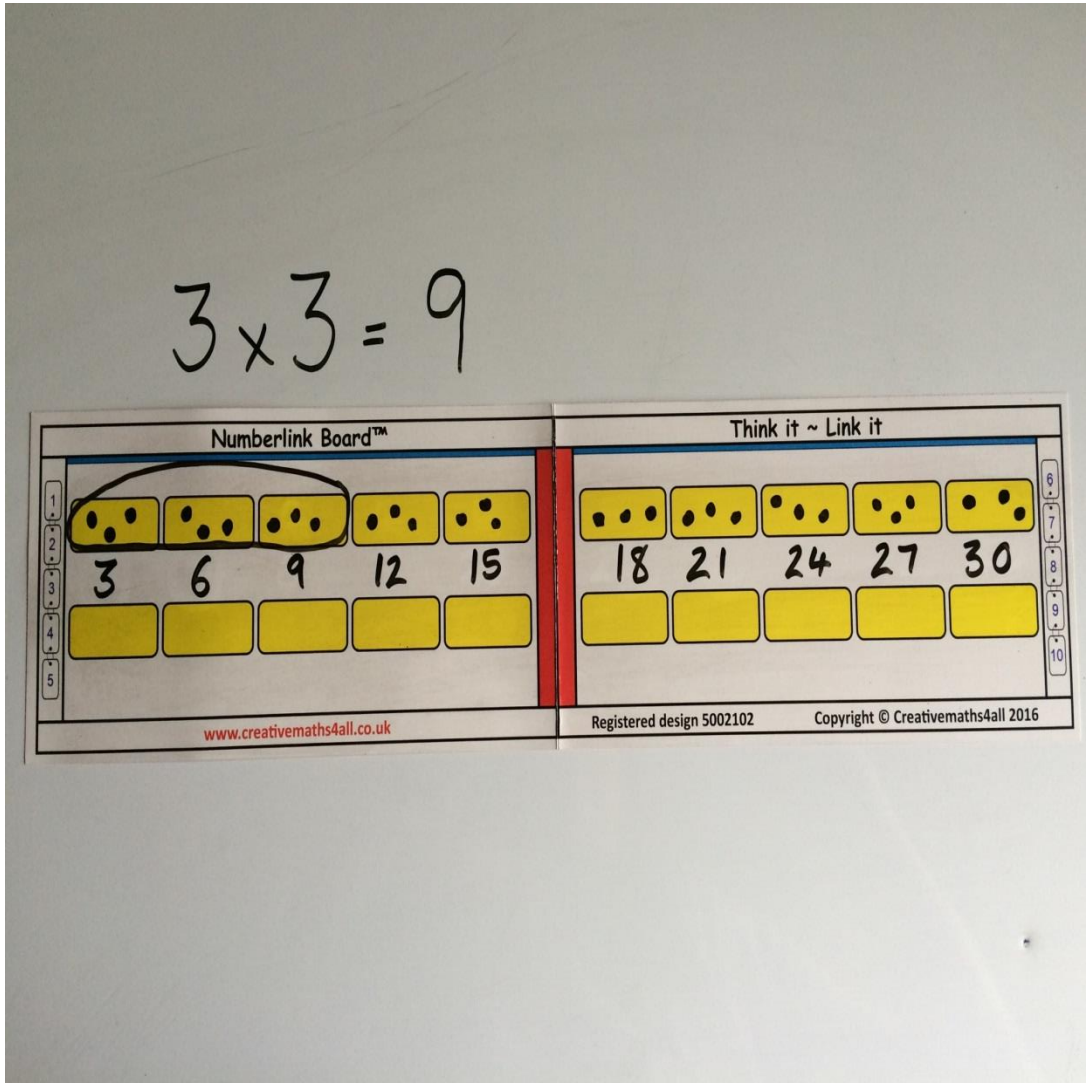
Write the multiplicands in the top row of yellow boxes. This reminds the children of this structure of multiplication as repeated addition.



Show me five lots of 2



Make sure children are really clear about how the multiplier is shown on the board, ie. by the number of repeated groups (multiplicands). Highlight the red line as an easy way to find 5 lots of. Practise this before putting any products on.



If children need support working out multiples, initially they can draw dots to show the cardinality of the number and count the dots.

Turntable - a game for two or more players

This game is really good for becoming more fluent with a multiplication table that you have already begun to learn.

You will need:
A Numberlink Board™ and pen
A ten sided dice

1. Each player chooses the times table they would like to practise. The players can choose different times tables to practise if they want.
2. Each player puts their multiplicands on but none of their products.
3. The first player rolls the dice. The dice shows the multiplier, eg. if you roll a 6, that is 6 times your multiplicand. The first player writes that product in the correct place on your board. You can use the zero as 10.
4. The second player has a turn and puts their product on the board.
5. Take it in turns to roll the dice. If you roll a number twice, you have to rub the product off the board. If you roll a number a third time, you can put the product back on again.
6. The winner is the first person to put all the products on the board, or the person who has the most products on when the time set for the game is up.

Practice with cards!


TIMES TABLES ROCK STARS

Division

Division involves both equal sharing and grouping.

$$6 \div 3 = 2$$

6 Easter eggs are shared between 3 children. How many eggs do they get each?

Sharing between three

There are 6 Easter eggs. How many children could have 3 eggs each?

Grouping in threes

Division

Counting in Groups

I found 6 shoes. How many pairs can I make?

6 ÷ 2 = 3

Take away groups of 2 in turn, or count up in groups of 2.

Division

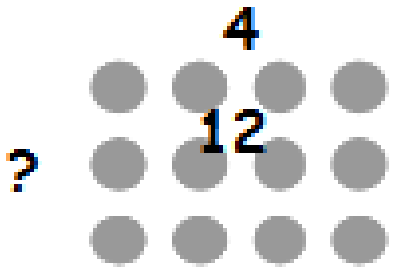
Arrays

Arrays can also be used for division. An 'empty box' may help children who are more confident with multiplication.

$12 \div 4 = 3$

$12 \div 3 = 4$

$12 \div 4 = \square$



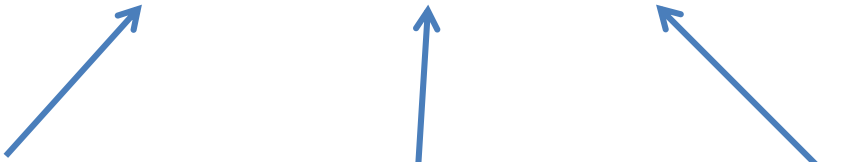
$4 \times \square = 12$

Here, the knowledge of the inverse is used.

Division

Key vocabulary

$$8 \div 2 = 4$$



dividend divisor quotient

Division

Key vocabulary

The **dividend** is number that is divided.

The **divisor** is the number we are dividing by.

The **quotient** is the result of a division calculation.

Linking division facts

How many 8s are there in 16?

How many 8s are there in 160?

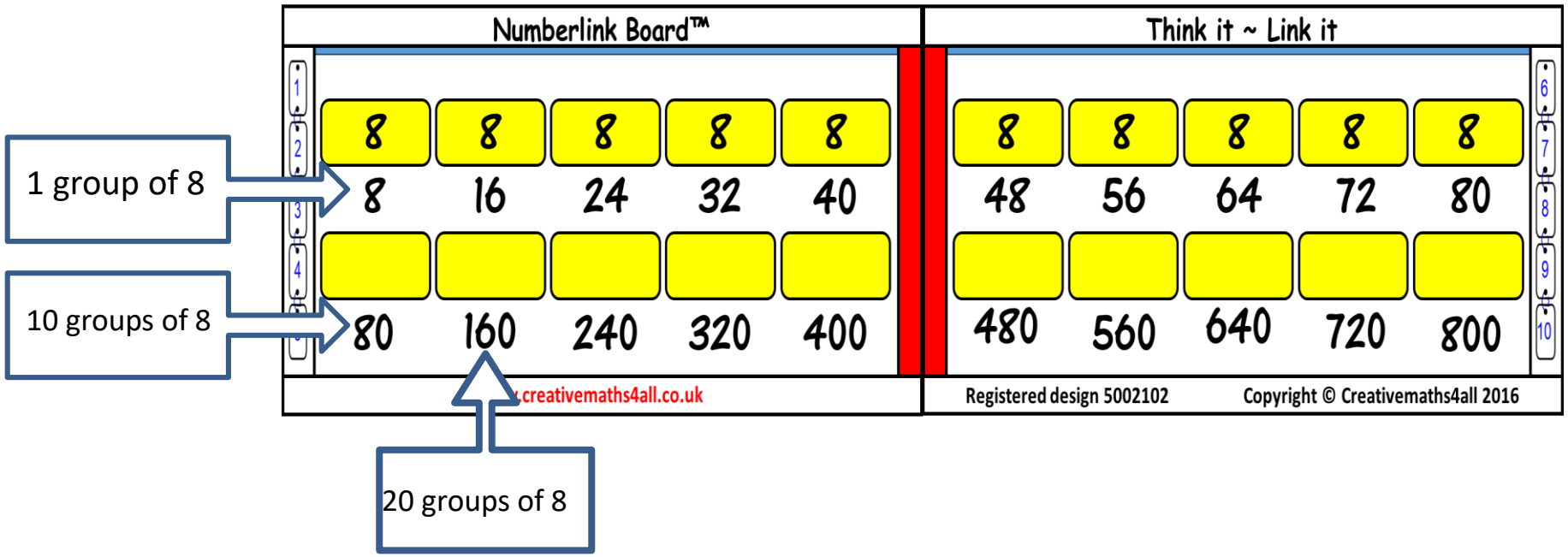
How many 8s are there in 72?

How many 8s are there in 720?

What is 640 ÷ 8?

What is 1/8 of 480?

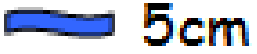
Estimate how many 8s there are in 43.



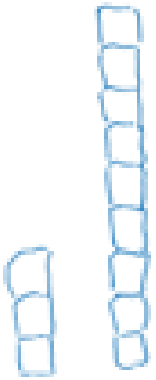
Multiplication & Division

Scaling

Find a ribbon that is 4 times as long as the blue ribbon.



Make a tower that is 3 times as high as this one.



The giant's hand is ten times bigger than my hand.

If his hand is 60cm wide, how wide is mine?

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Read our guide on how to sort out your leavers, movers and arrivers.

Multiplication & Division

How can parents help at home?

One of the most valuable things you can do is talk about maths. Find maths around the house or when out shopping and play games involving numbers.

How many pairs of socks are there?

What will 3 apples cost?

How many glasses of juice can we pour from this bottle?

How many knives and forks do I need to lay the table?

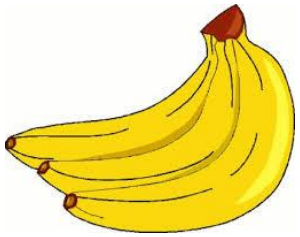
How many sweets will we each get if we share them equally?

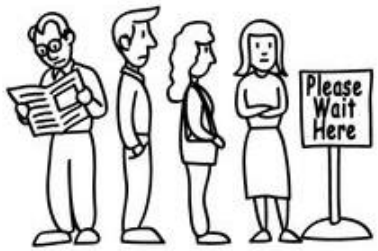
maths eyes

How can parents help?

Out and about…

How many groups of 3 bananas can I make with 10 bananas?





How many people are in front of us in the queue? What if there were 10 times as many?

What if the product of the digits in the number plate?