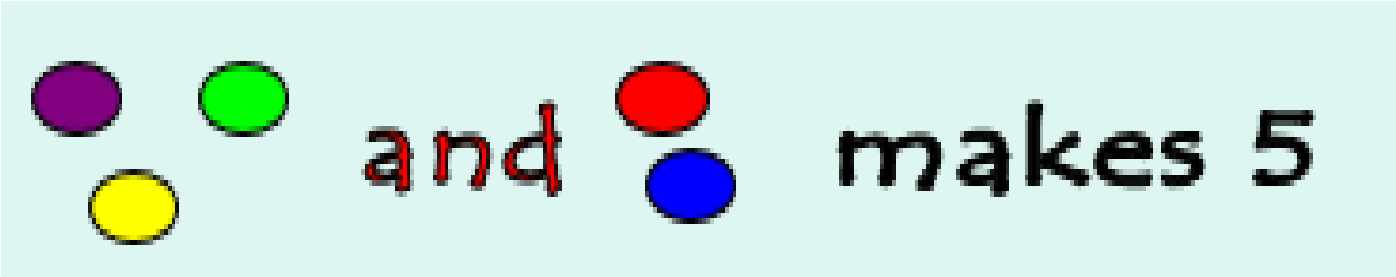
FS & KS1
Calculation Workshop

Addition

In Reception, children will begin to relate addition to combining 2 groups of objects.



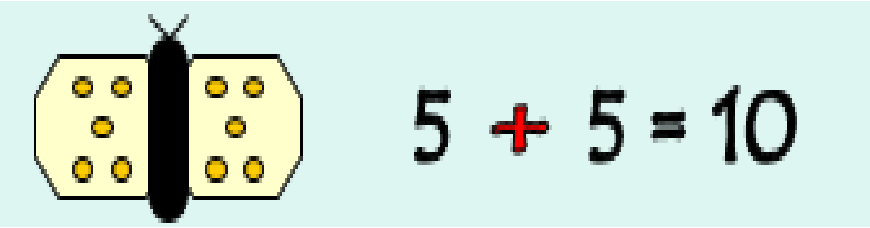
They will begin to record number sentences using + = symbols (this continues to be developed in Year 1).

$$6 + 4 = 10$$

Addition

In Reception, they learn the number bonds to 5 and some to 10, including doubles facts.

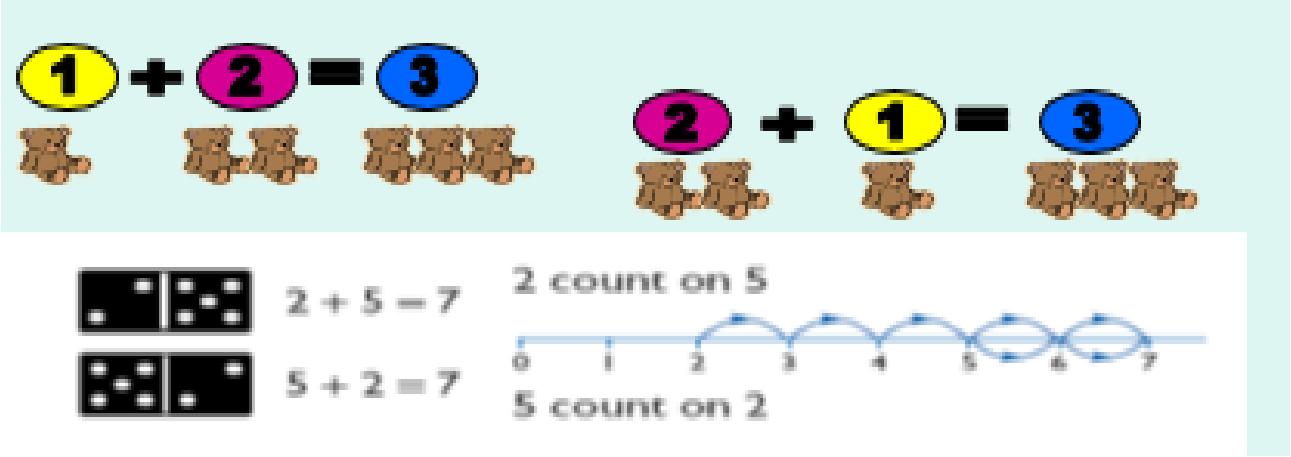
They will use lots of practical resources in order to learn and embed these facts.



In Year 1, they build upon the number bonds learnt in Reception – learning and using number bonds to 10 then moving onto number bonds to 20.

Addition

The children will learn the important concept that addition can be done in any order.



They will practise re-arranging number sentences.
Make number sentences practically, write the sentence.
Rearrange the numbers then write the sentence again.

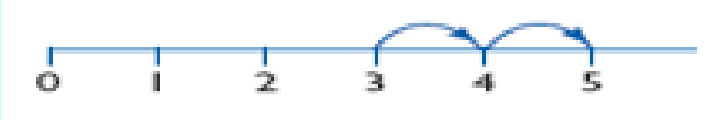
2+3=5 3+2=5

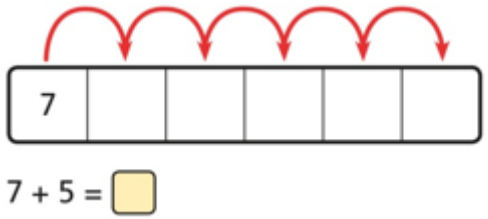
5-2=3 5-3=2

Addition

They will use number lines and number tracks to count along to add numbers together.

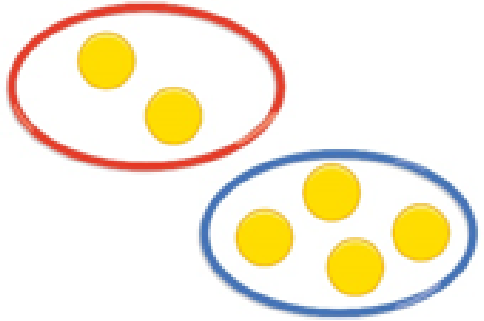
$3 + 2 = 5$



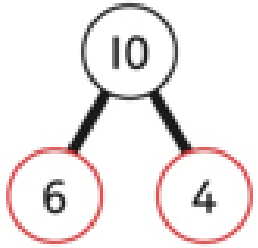


They will use part-whole models to understand the relationships between the parts and whole.

Children draw to represent the parts and understand the relationship with the whole.



The parts are 2 and 4. The whole is 6.

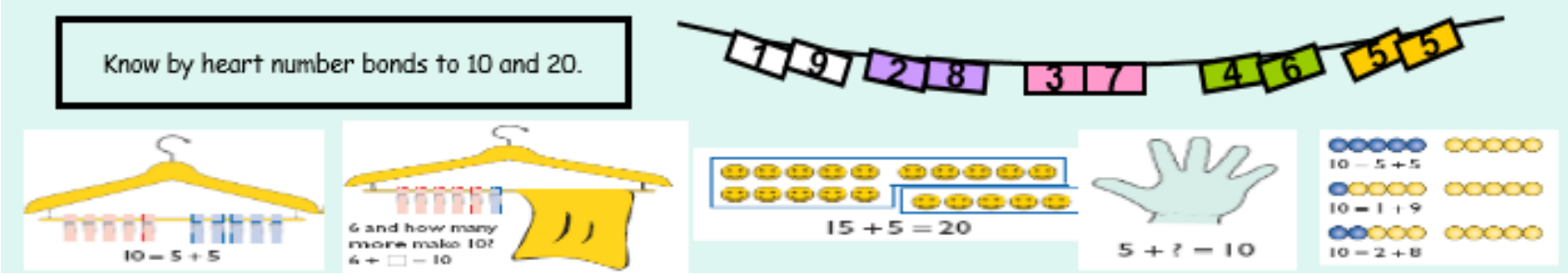


6 + 4 = 10

6 + 4 = 10

Addition

In Year 2, children continue to build upon everything they have learnt so far.



They should recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.

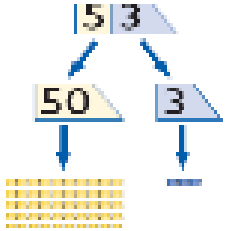
e.g. 2 + 3 = 5 so 20 + 30 = 50

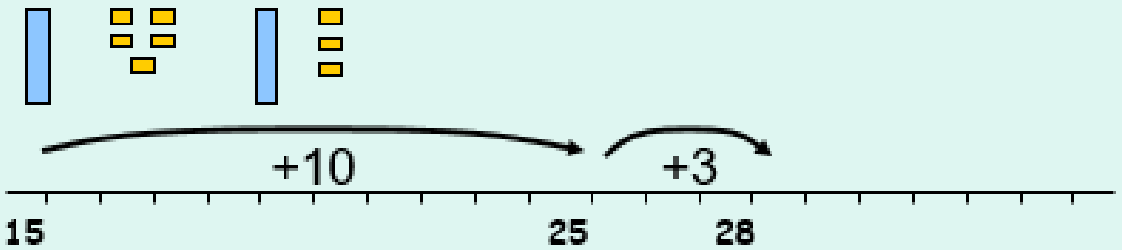
Addition

They will continue to use number lines to support addition but are also encouraged to use known number bonds to improve efficiency and accuracy.

34 + 5 = 39

Begin to partition numbers in order to add





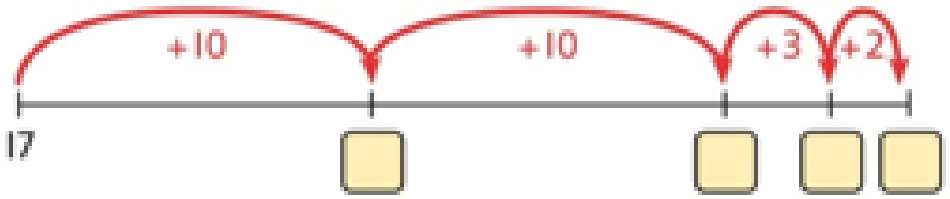
Adding two two-digit numbers (without bridging)

Counting in tens and ones

Partitioning and recombining

15 + 13 = 28

Addition



17 + 25

Children in Y2 may be introduced to columns addition if they are confident in partitioning, the value of digits, using number lines. This does not need to be formally introduced until Year 3.

	T	O
	3	2
+	1	4
		6

	T	O
	3	2
+	1	4
	4	6

Subtraction

In Reception, work on subtraction is very practical:

Begin to count backwards in familiar contexts such as number rhymes or stories

Five fat sausages frying in a pan ...

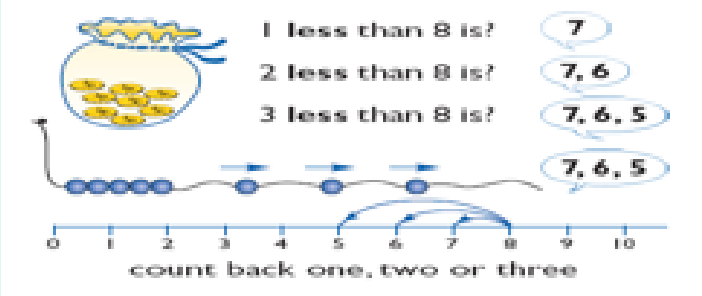
Ten green bottles hanging on the wall ...

10, 9, 8, 7 . . .

Continue the count back in ones from any given number

Begin to relate subtraction to ' taking away '

Three teddies take away two teddies leaves one teddy



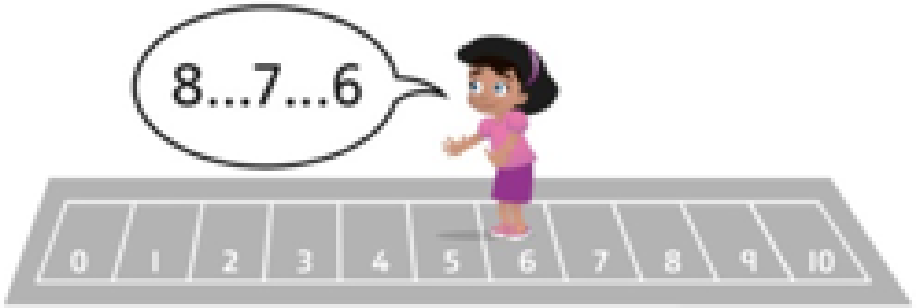
Find one less than a number

Subtraction

In Year 1, children will continue to use concrete materials to support them before moving on to using number lines and number tracks to

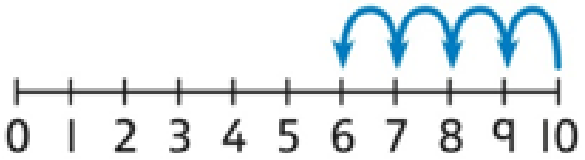
Children arrange objects and remove to find how many are left.

1 less than 6 is 5.
6 subtract 1 is 5.



9 − 3 = 6

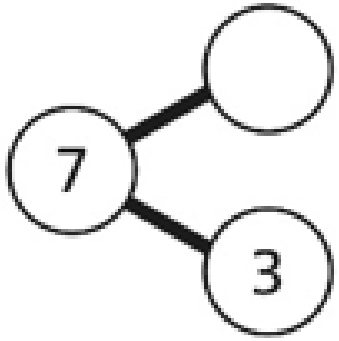
They will understand ‘find the difference’ as subtraction.



10 − 4 = 6
The difference between 10 and 6 is 4.

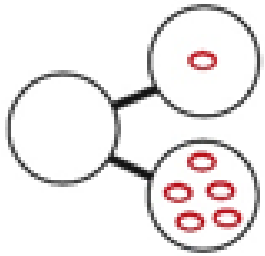
Subtraction

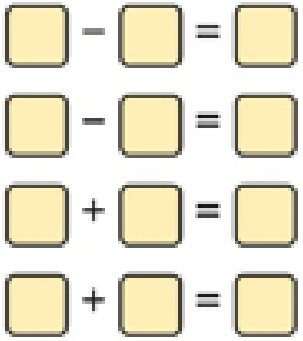
Children use a part-whole model to support the subtraction to find a missing part.



7 − 3 = ?

Children develop an understanding of the relationship between addition and subtraction facts in a part-whole model.

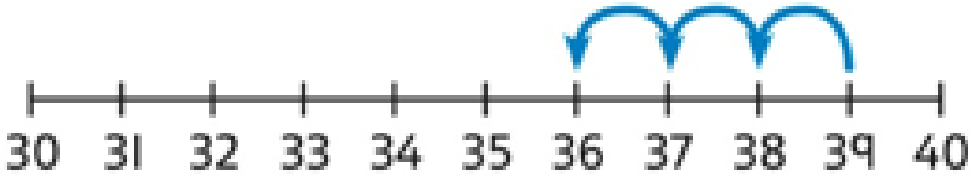




Subtraction

In Year 2, the children will use known number bonds and facts to help them subtract e.g. 7 – 5 = 2 so 70- 50 = 20

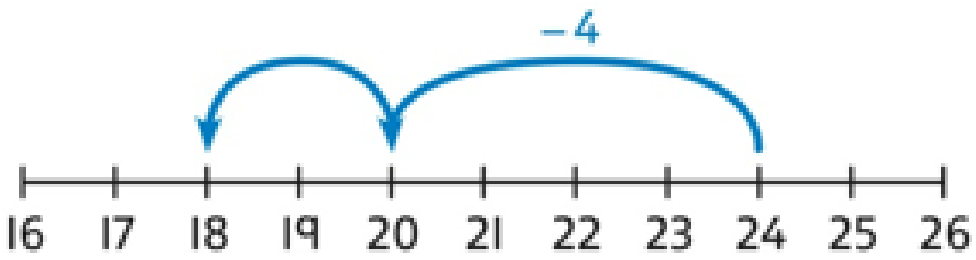
They will continue to use part-whole models and number lines. Making links e.g.



$9 - 3 = 6$
$39 - 3 = 36$

Subtraction

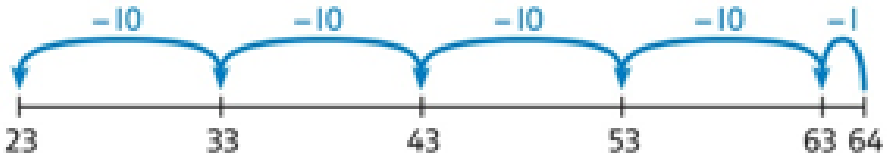
Bridge 10 by using known bonds.



24 – 6 =?
24 – 4 – 2 =?

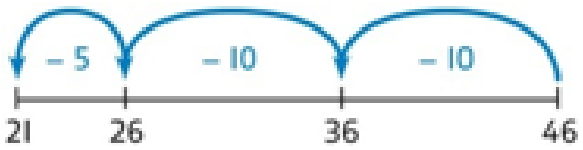
Subtract the 10s and the 1s.

This can be represented on a number line.



64 – 41 = ?

64 – 1 = 63
63 – 40 = 23
64 – 41 = 23

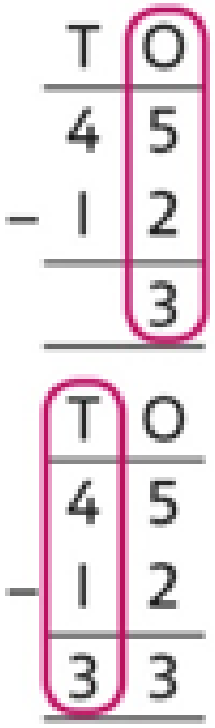


46 – 20 = 26
26 – 5 = 21
46 – 25 = 21

Subtraction

In Year 2, children may be introduced to columns subtraction if they are confident in partitioning, the value of digits and using number lines.

They will need to understand that the ones are subtracted first, then the tens.



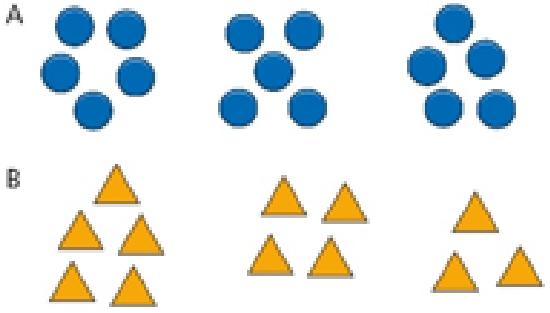
Multiplication

In Reception, children explore and represent patterns in numbers up to 10 including evens, odds, double facts and how numbers can be distributed equally.

In Year 1, children start by looking at equal groups.

Recognising and making equal groups
Children arrange objects in equal and unequal groups and understand how to recognise whether they are equal.

Recognising and making equal groups
Children draw and represent equal and unequal groups.



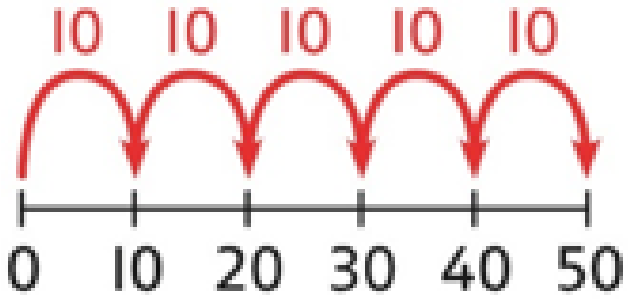
Multiplication

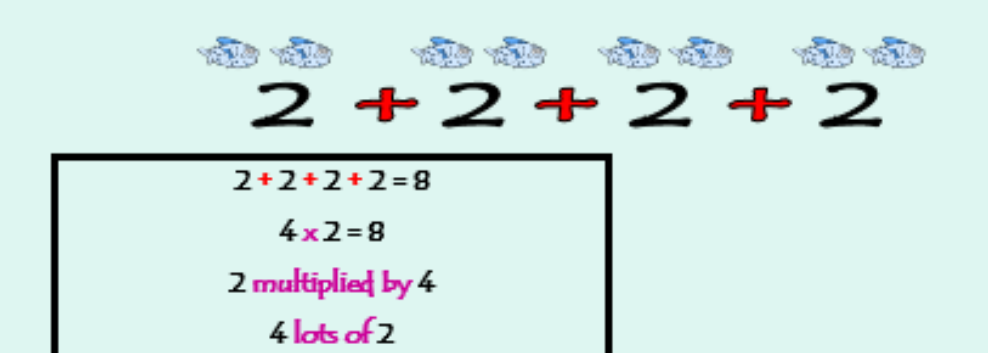
In Year 1, children will use practical resources to support their understanding. They will count in 2's, 5's and 10's and understand that multiplication is repeated addition.

Finding the total of equal groups by counting in 2s, 5s and 10s

There are 5 pens in each pack …
5…10…15…20…25…30…35…40…

Use a number line to support repeated addition through counting in 2s, 5s and 10s.

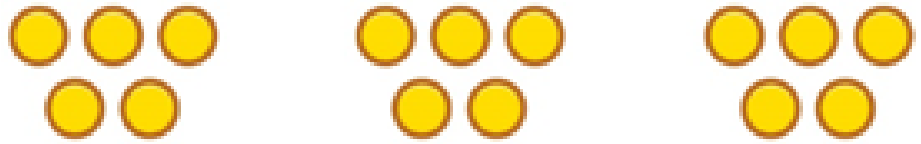




Multiplication

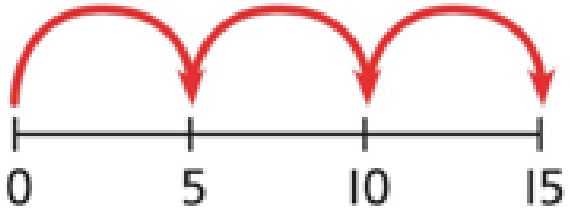
In Year 2, children continue to recognise equal groups and write as repeated addition and as multiplication.

3 groups of 5 chairs
15 chairs altogether



3 groups of 5
15 in total

Use a number line and write as repeated addition and as multiplication.

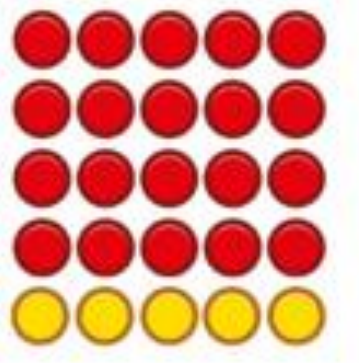


5 + 5 + 5 = 15
3 × 5 = 15

Multiplication

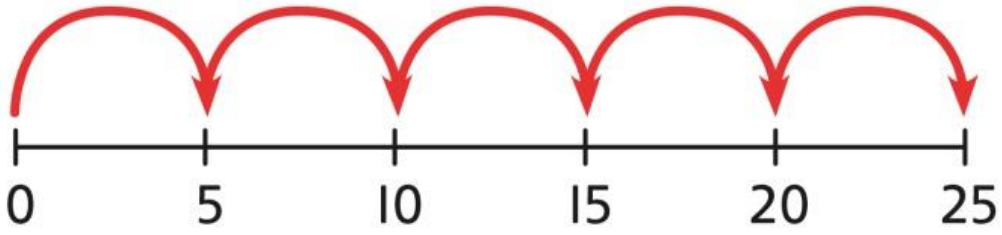
Using arrays to represent multiplication and support understanding

4 groups of 5



4 groups of 5 … 5 groups of 5

Understand the relationship between arrays, multiplication and repeated addition.



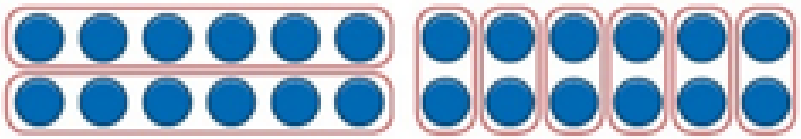
$5 \times 5 = 25$

Multiplication

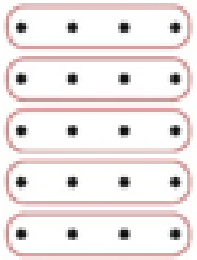
A key concept in Year 2 is that multiplication is commutative – arrays can be used to support this understanding.

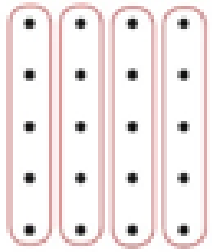
I can see 6 groups of 3.
I can see 3 groups of 6.

Form arrays using counters to visualise commutativity. Rotate the array to show that orientation does not change the multiplication.



This is 2 groups of 6 and also 6 groups of 2.

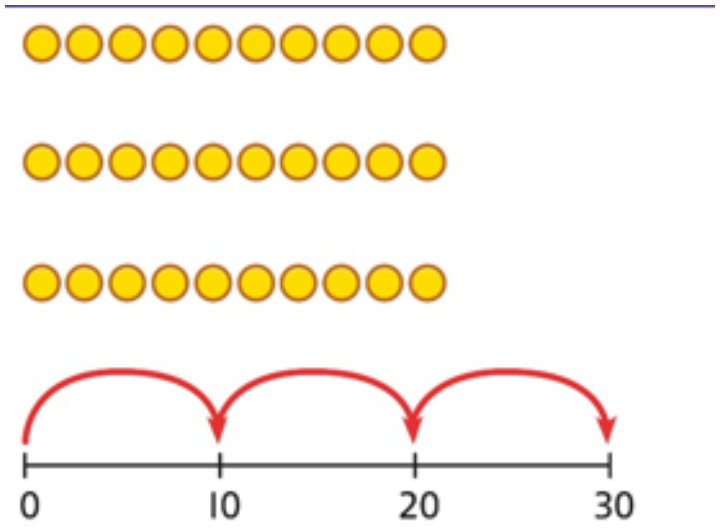




4 + 4 + 4 + 4 + 4 = 20
5 + 5 + 5 + 5 = 20
4 × 5 = 20 and 5 × 4 = 20

Multiplication

In Year 2, children learn their 2, 5 and 10 times tables. They will learn all tables up to 12 x 12 by the end of Year 4.

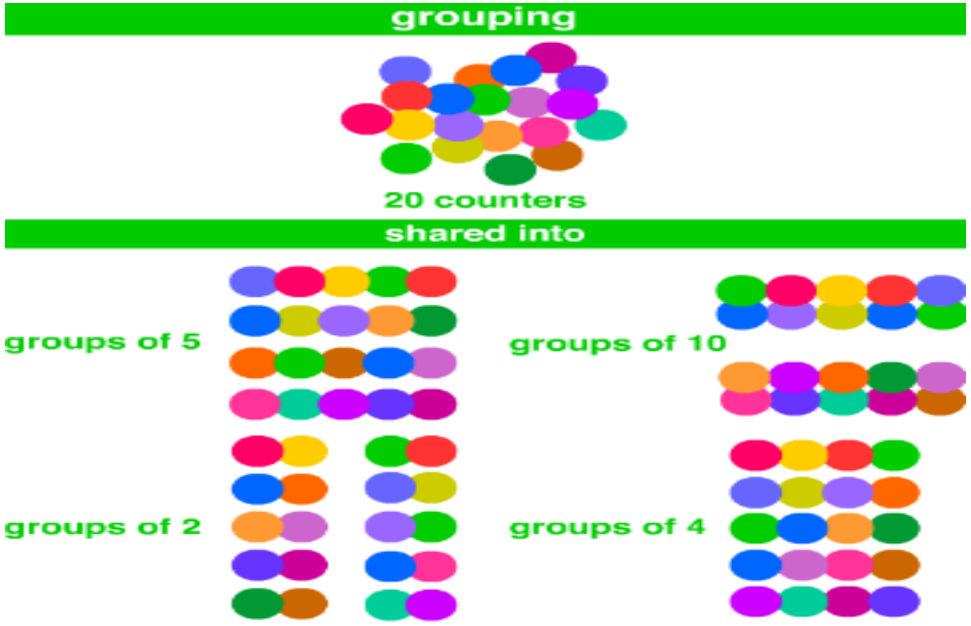


10 + 10 + 10 = 30
3 × 10 = 30

Division

In Reception, children explore and represent patterns in numbers up to 10 including evens, odds, double facts and how numbers can be distributed equally.

In Year 1, the children learn to both group and share. Pairing socks is a fun way to group at home!

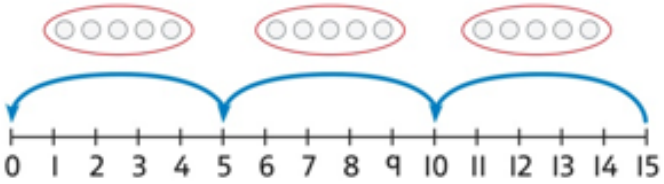


Learn to make equal groups from a whole and find how many equal groups of a certain size can be made.

Sort a whole set people and objects into equal groups.

There are 10 children altogether.
There are 2 in each group.
There are 5 groups.

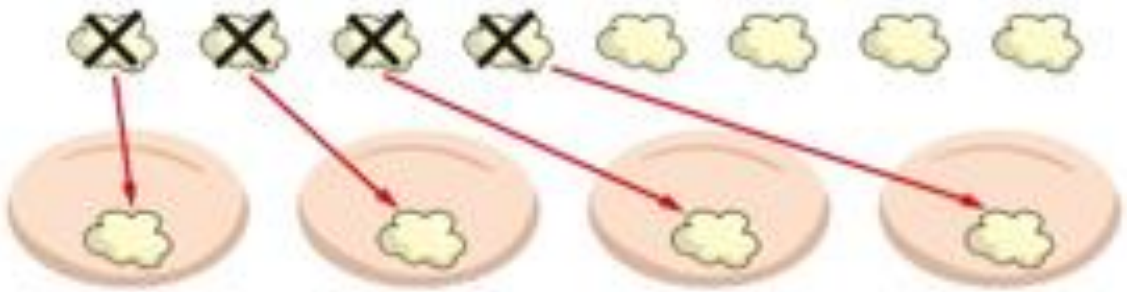
Children may relate this to counting back in steps of 2, 5 or 10.

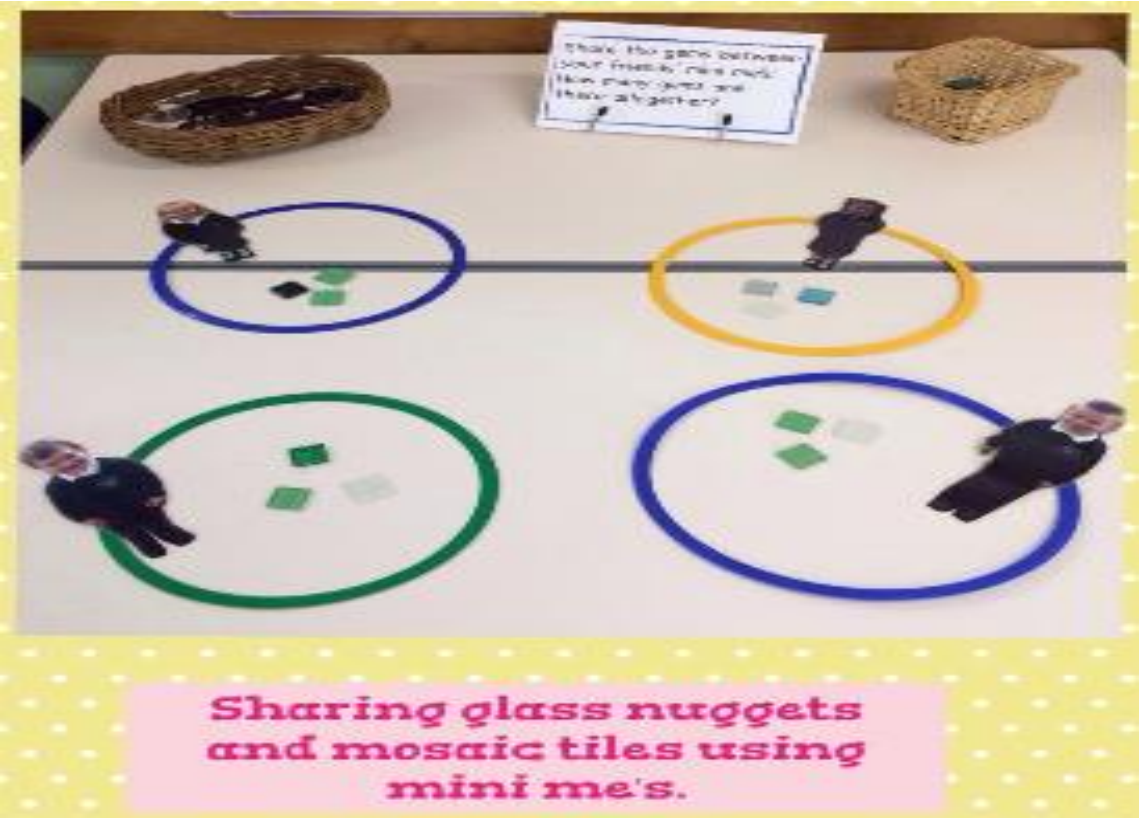


Division

Sharing

Share a set of objects into equal parts and work out how many are in each part.





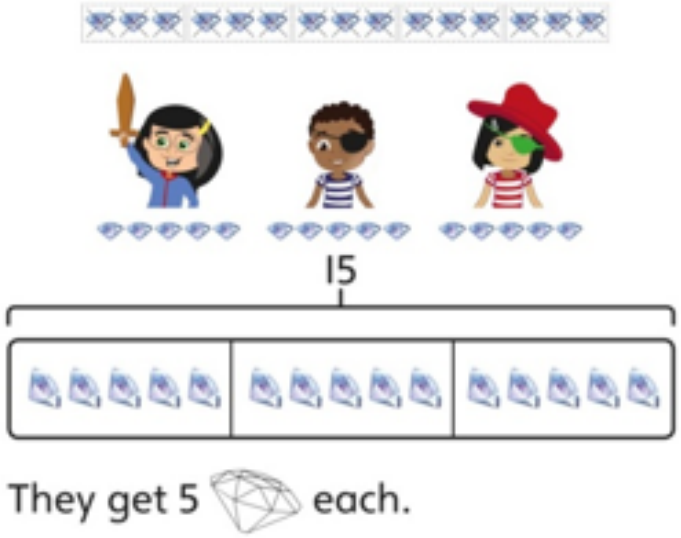
Division

In Year 2, children continue to work on sharing equally and grouping equally as well as using known times-tables to calculate division.

Start with a whole and share into equal parts, one at a time.

12 shared equally between 2.
They get 6 each.

Start to understand how this also relates to grouping. To share equally between 3 people, take a group of 3 and give 1 to each person. Keep going until all the objects have been shared



15 shared equally between 3.
They get 5 each.

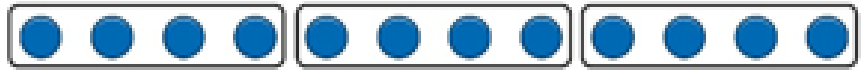
Division

Understand how to make equal groups from a whole.

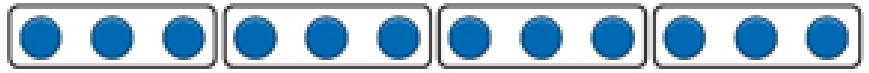
8 divided into 4 equal groups.
There are 2 in each group.

Understand the relationship between grouping and the division statements.

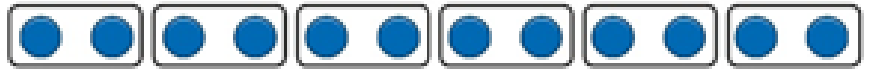
12 ÷ 3 = 4



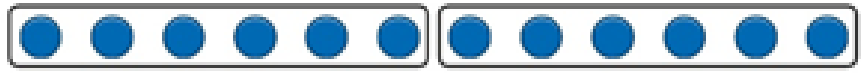
12 ÷ 4 = 3



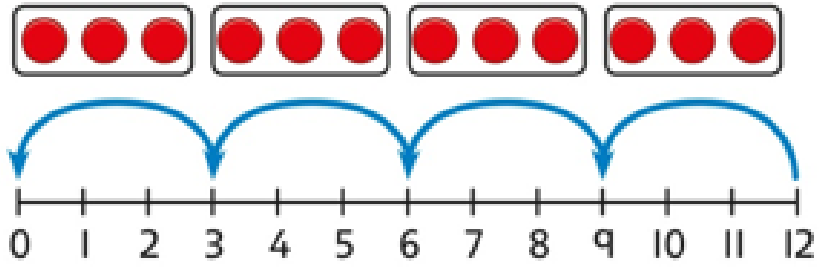
12 ÷ 6 = 2



12 ÷ 2 = 6



Division



There are 4 groups now.

12 divided into groups of 3.
12 ÷ 3 = 4

There are 4 groups.

Sarah is filling party bags with sweets. She has 20 sweets altogether and decides to put 5 in every bag. How many bags can she fill?

How else could 20 sweets be put into bags so that every bag had the same number of sweets?

How many bags would be packed each time?

Division

Relate times-table knowledge directly to division.

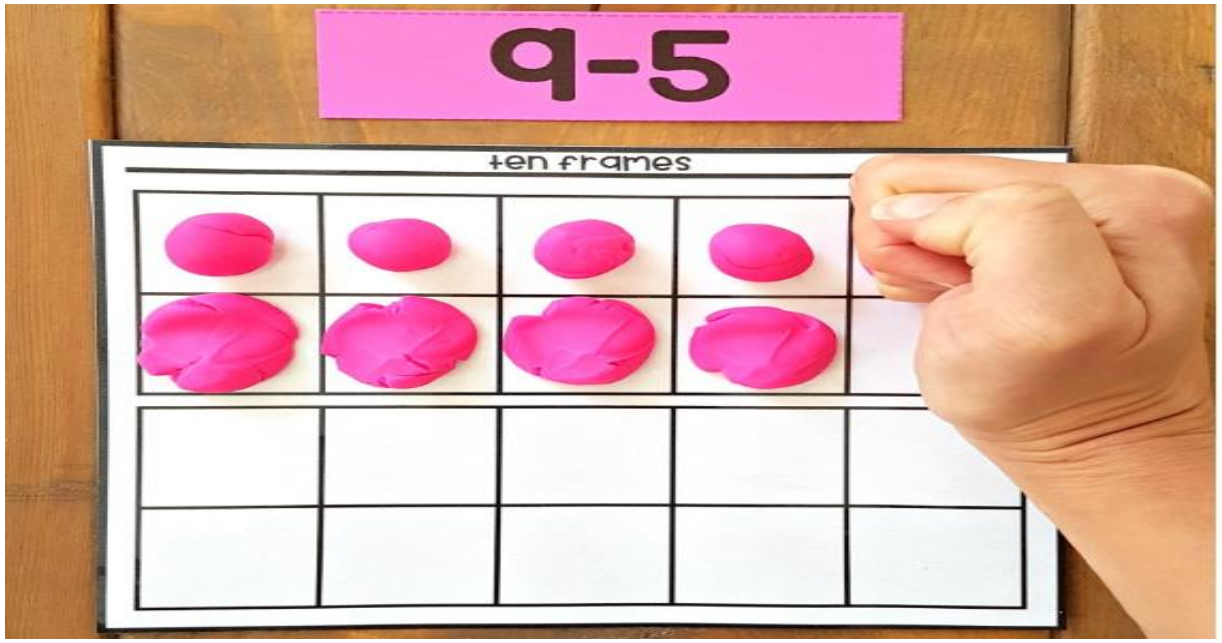
$1 \times 10 = 10$
$2 \times 10 = 20$
$3 \times 10 = 30$
$4 \times 10 = 40$
$5 \times 10 = 50$
$6 \times 10 = 60$
$7 \times 10 = 70$
$8 \times 10 = 80$

I used the 10 times-table to help me. $3 \times 10 = 30$.

I know that 3 groups of 10 makes 30, so I know that 30 divided by 10 is 3.

$3 \times 10 = 30$ so $30 \div 10 = 3$

Addition & Subtraction Games & Activities



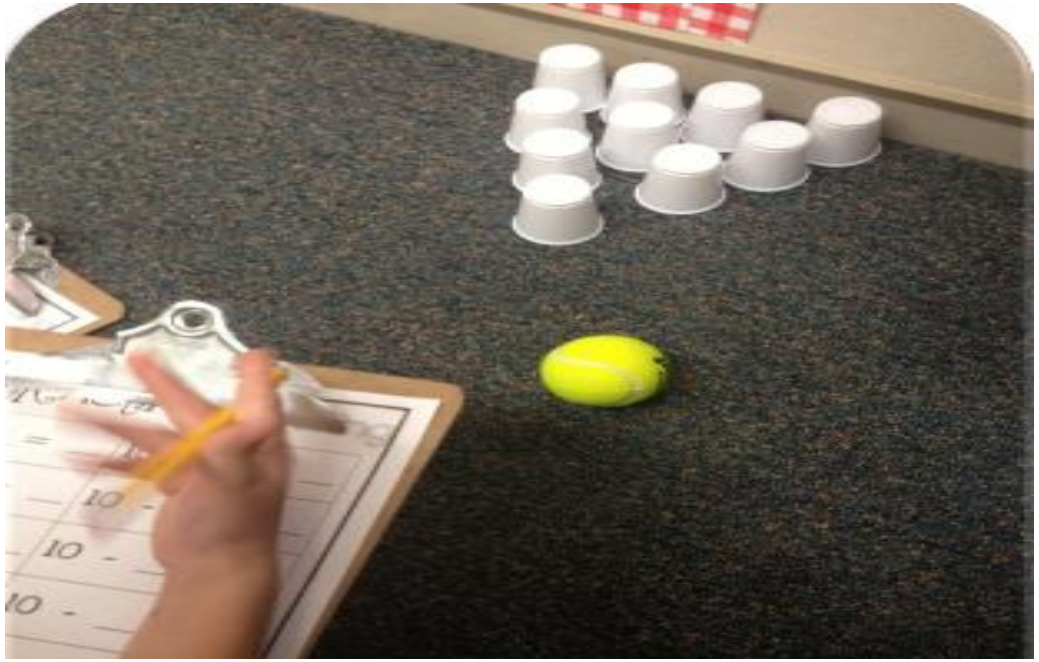
Children can roll balls of PlayDoh to represent the first number in a subtraction equation. Then “smash away” the second number to find the answer.

Addition & Subtraction Games & Activities

- Use a sectioned plate and small objects to practice solving equations. Children can count objects into different sections and move them to find the answer. You can find these plates at Ikea an many other shops.

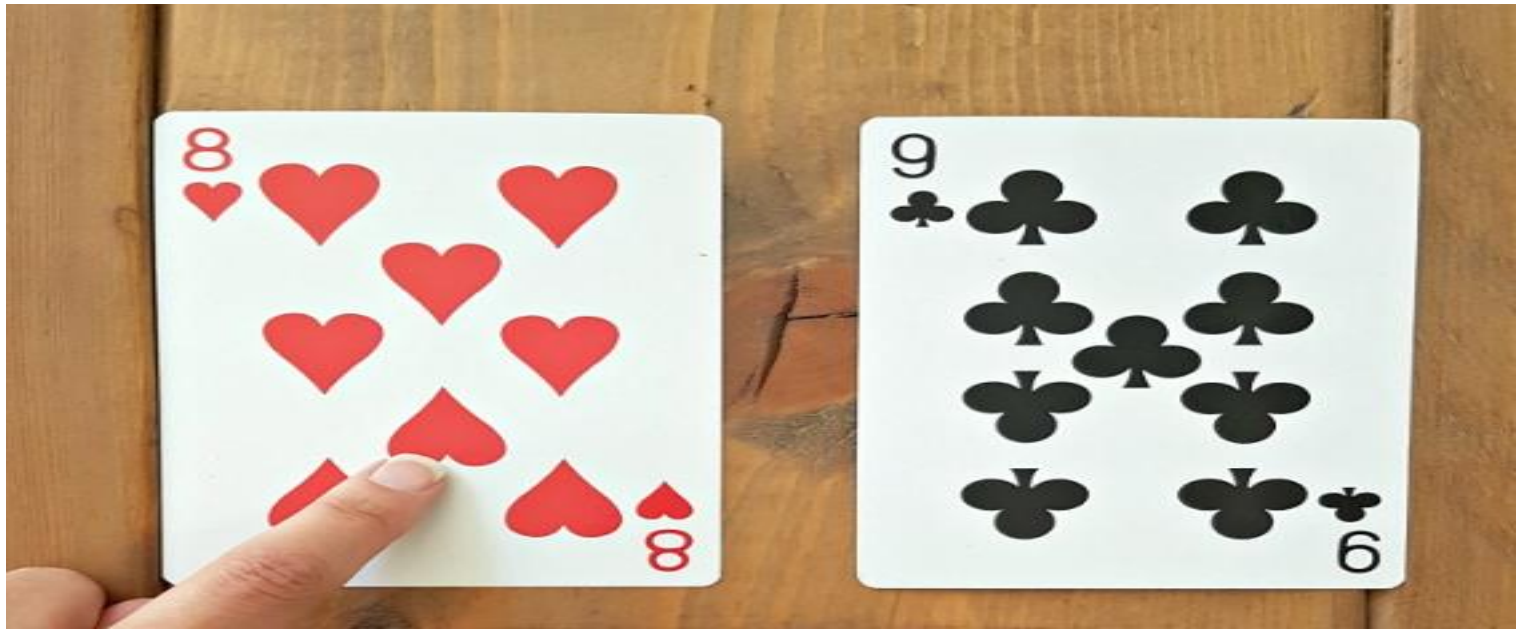
Addition & Subtraction Games & Activities

- Play subtraction bowling. Set up 10 bowling pins (or cups) and use a ball to knock some down. Record subtraction equations to represent what is left standing (i.e. 10 pins – ? = ?).

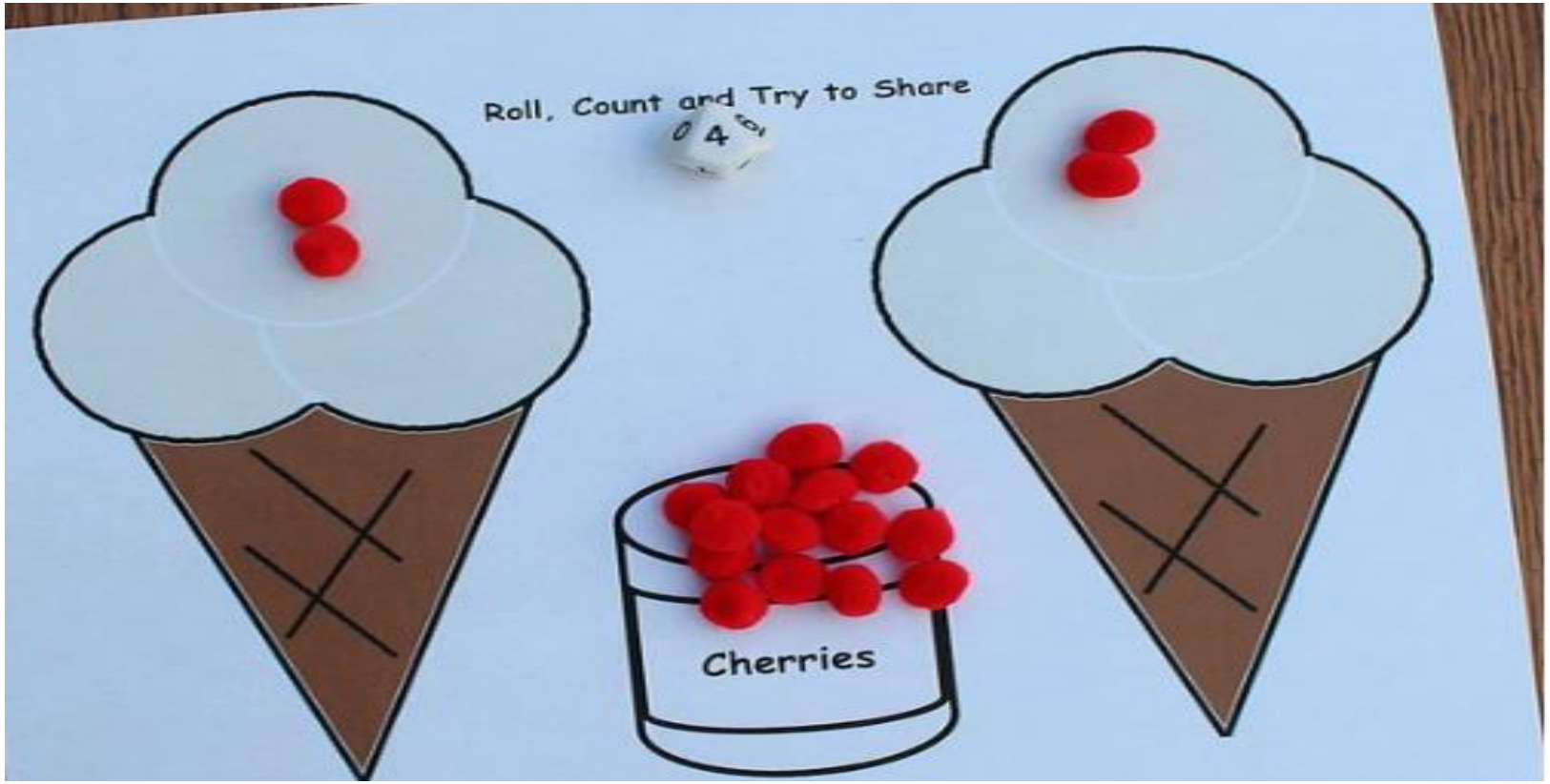


Addition & Subtraction Games & Activities

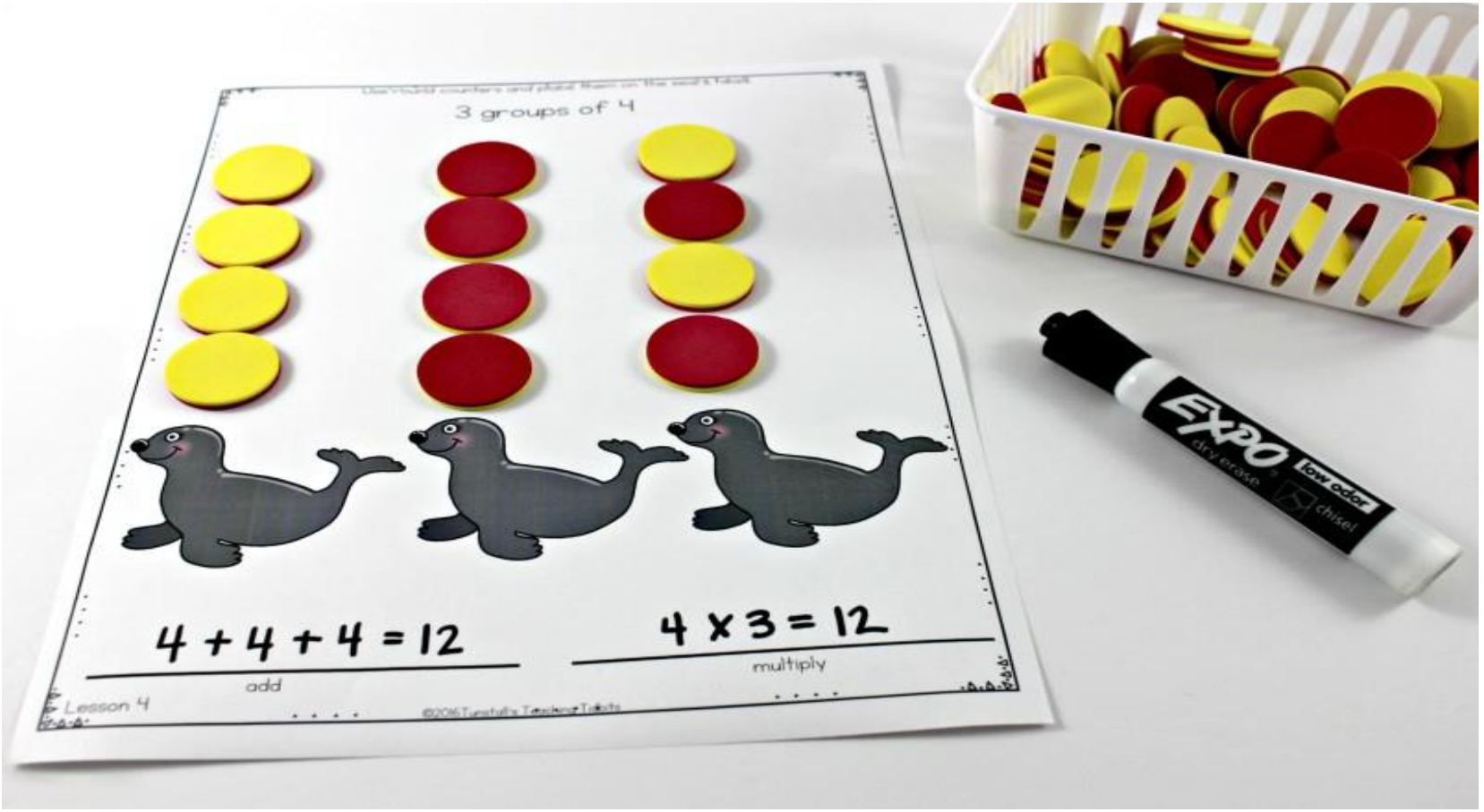
Play addition and subtraction games with a deck of cards. One simple one is Addition War: Each player turns over 2 cards, adds them up, and the player with the higher number gets the cards. Play until one player loses all of their cards. Repeat for subtraction.
It could also be used for multiplication.
Dice could be used instead of cards.



Multiplication and Division Games and Activities



Multiplication and Division Games and Activities



Useful Websites/Apps to support learning

- Hit the Button – number bonds, doubles, times tables

Hit the Button - Quick fire maths practise for 6-11 year olds (topmarks.co.uk)

- Times Table Rock Stars
- Topmarks maths – lots of games for all areas of maths

Learn to Count with fun Counting Games for KS1 Children (topmarks.co.uk)

- Time table tester

Times Table Tester | CGP Books

- Times table tips

Help with times tables: fun ideas, videos and quizzes | Oxford Owl

App

- White Rose 1 minute maths app – free to download

1-Minute Maths App | White Rose Maths