The Marist Catholic Primary School

## Welcome to our KS1 Maths information evening

The aims of this session

- To discuss the importance of bar modelling.

- To enable you to see the progression in calculation methods in Key Stage 1.

- To give you opportunity to 'have a go' at using the maths resources that your child already is, or will be using in KS1.

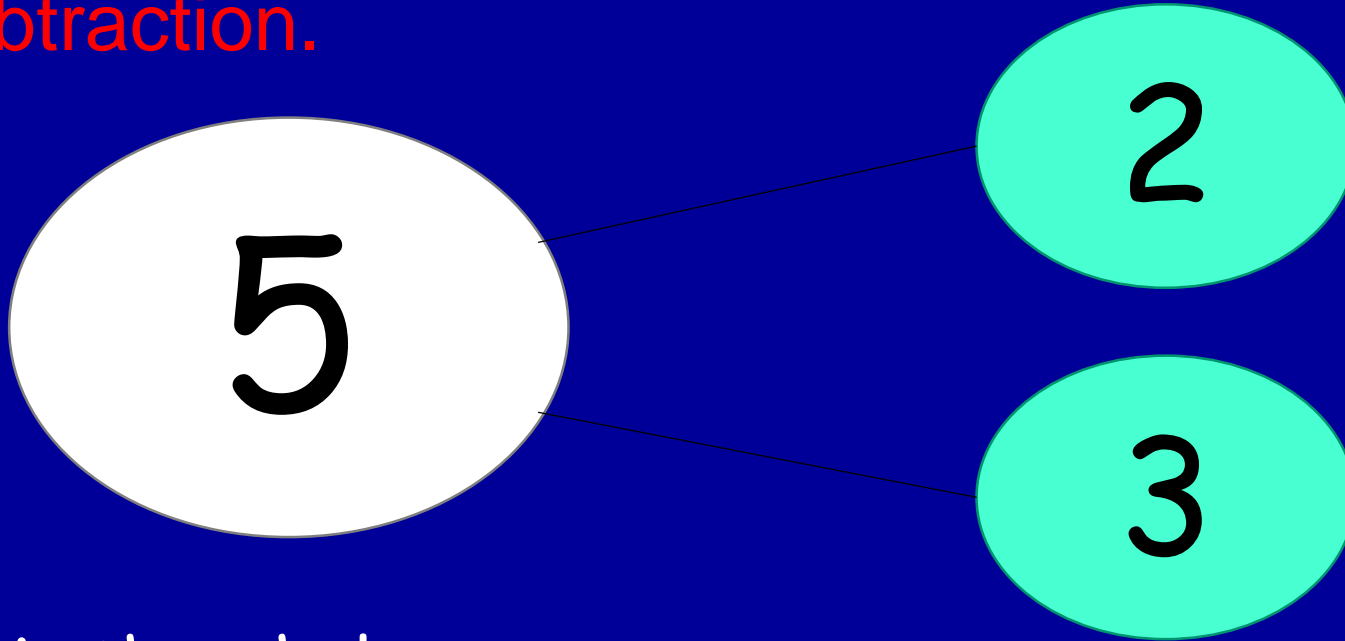- To look at the end of key stage 1 assessment in maths.

KS1 Bar Modelling

Partitioning numbers in Year 1

The Part - Part Whole Model

5

2

3
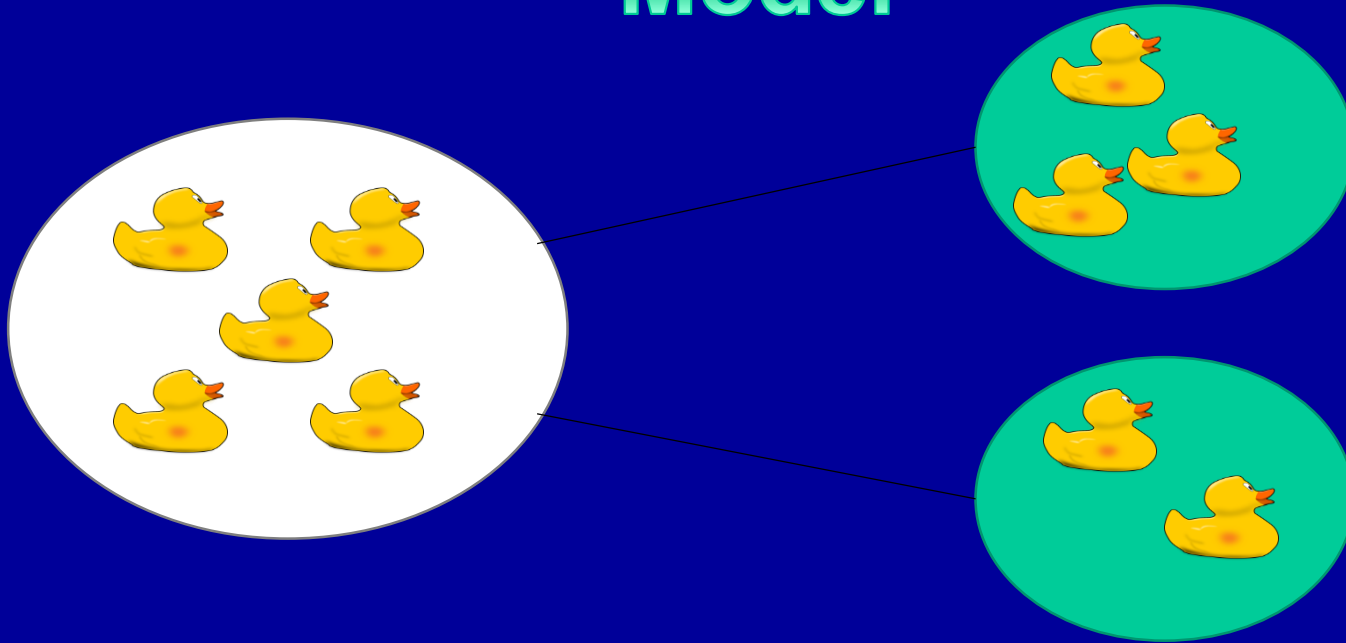
5 is the whole.
2 is a part.
3 is a part.

6

4   2
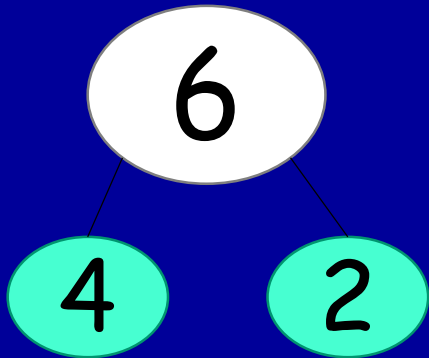
4 is a part.
2 is a part.
6 is the whole
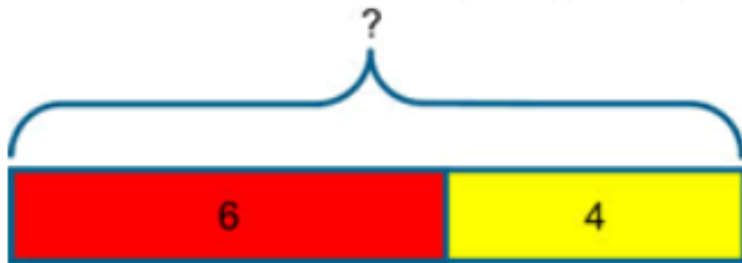
6
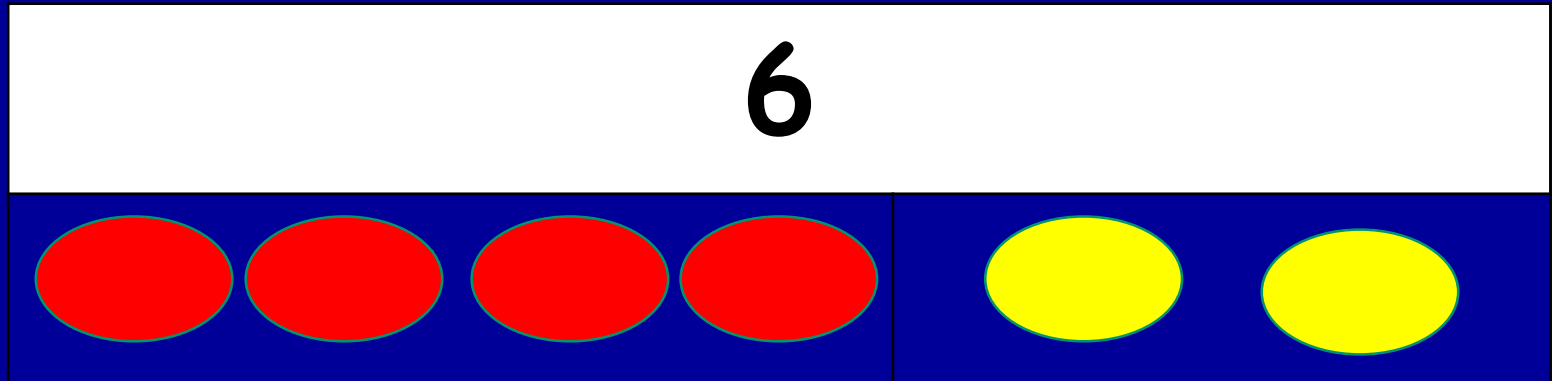
In problems involving addition and subtraction there are three possible unknowns as illustrated below and given the value of two of them the third can be found.
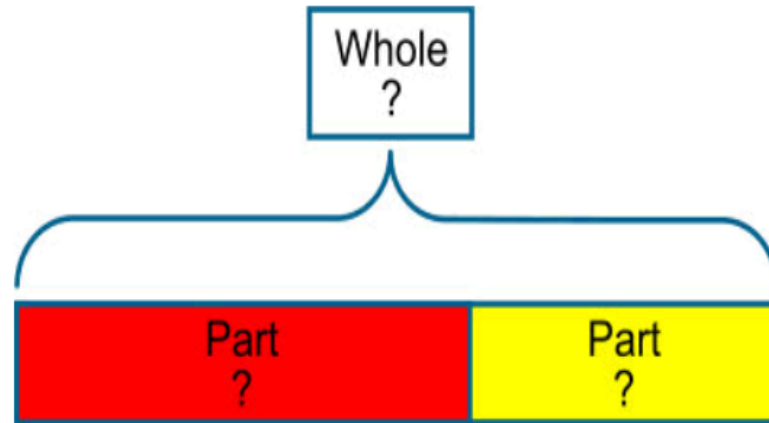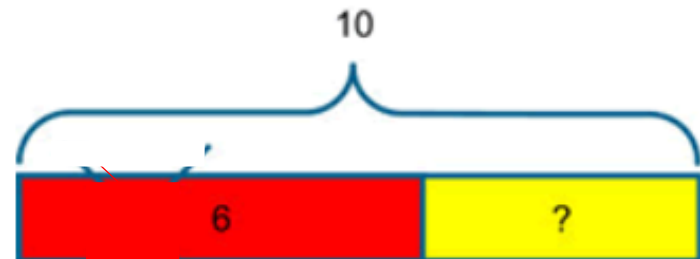

Addition

I have 6 red pencils and 4 yellow pencils. How many pencils do I have?

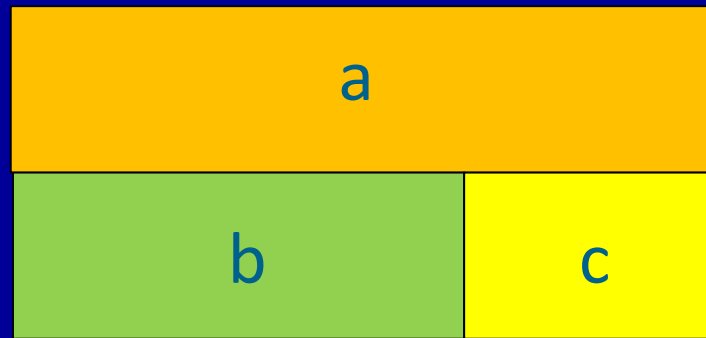(I combine two quantities to form the whole)

Subtraction - Take Away

I had 10 pencils and I gave 6 away, how many do I have now?

(This time we know the whole but only one of the parts, so the whole is partitioned and one of the parts removed to identify the missing part)

The bar model is used to illustrate the relationship between addition and subtraction

a = b + c

a = c + b

a – b = c

a – c = b

Part / whole relationships

Over to you: Practice Questions

Maths Paper 2: Reasoning

27 Sita has **50** raisins.

She gives **23** to Ben.

She gives **15** to Amy.

How many raisins does Sita have left?

Show your working

_____ raisins

2 marks

Addition

Our children will be doing a daily mixture of practical, mental and oral work including lots of counting, talking about numbers and using numbers in real life activities. They will begin to record what they've done with pictures and numbers. These recordings will help them to understand what is happening and to show how they've worked something out. Here is an example of early recording.

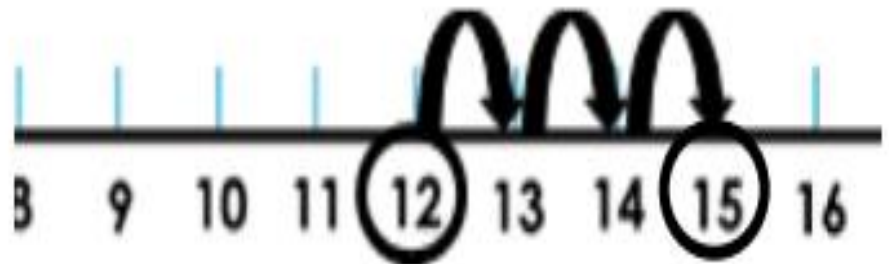*Jane had 3 bears. She was given 2 more. How many does she have now?*
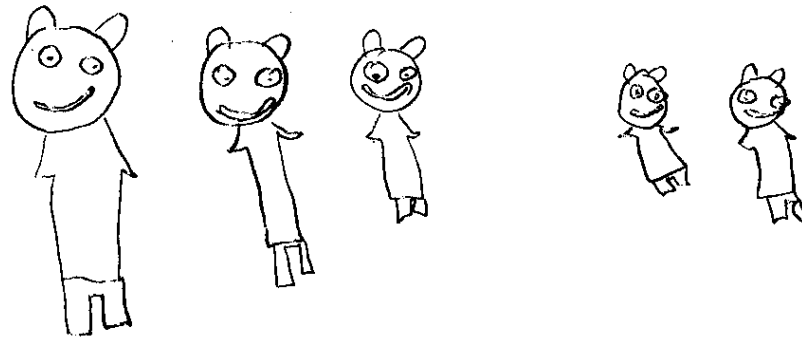
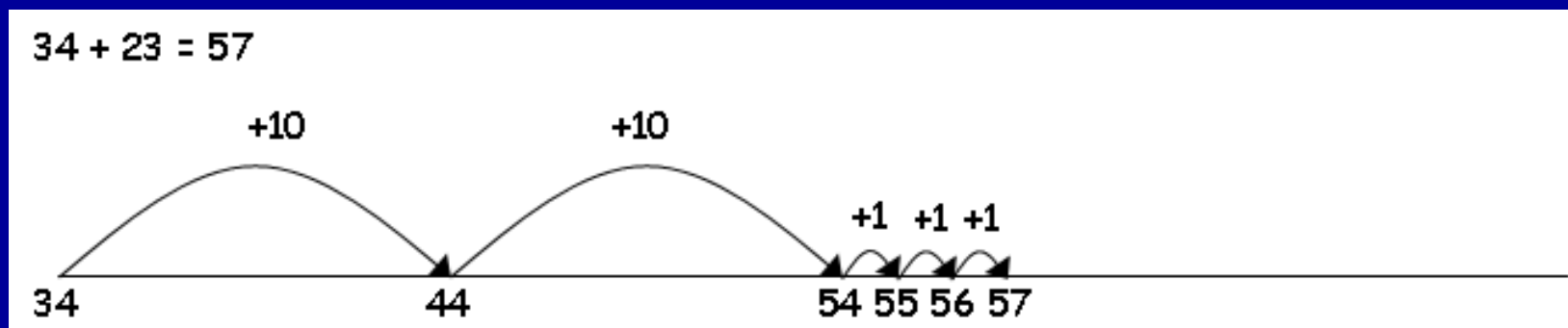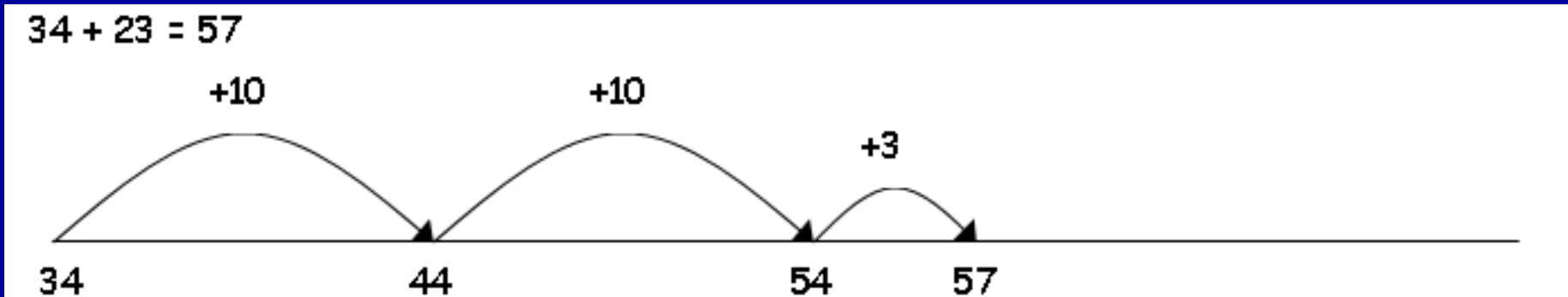3   3+ 2=5   2.

Practical use of resources

$8 + 1 = 9$

$15 = 12 + 3$

Children will begin to use number lines themselves starting with the larger number and counting on. First counting on in tens and then ones.

34 + 23 = 57

+10   +10   +1 +1 +1

34   44   54 55 56 57

Then we will help children to become more efficient by adding the ones in one jump.

34 + 23 = 57

+10   +10   +3

34   44   54   57

Partitioning of numbers

Pupils also need to develop their use of jottings to support mental calculation.

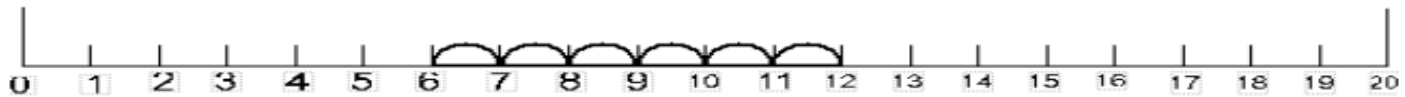For instance partitioning may be recorded in numbers as:

10 = 6 + 4
10 – 6 = 4
10 – 4 = 6
10 = 4 + 6

$$38 + 26 = 30 + 20 + 8 + 6$$
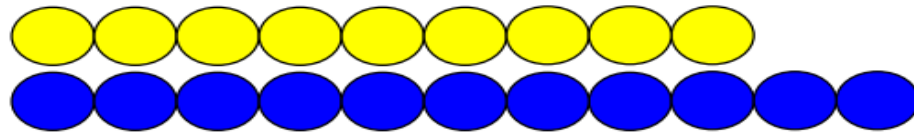$$= 50 + 8 + 6$$
$$= 58 + 6$$
$$= 64$$

Subtraction

Taking away ones - Start by using concrete objects such as, counters, cubes, number lines.....etc to show how objects can be taken away.

12 - 6 = 6

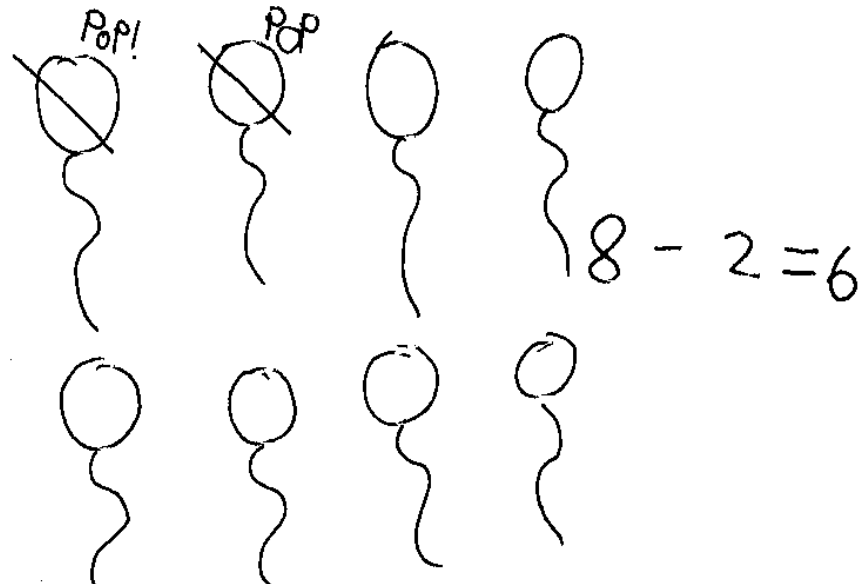'Put your finger on number twelve and count back six.'

11 – 9 = 2

The **difference between** nine and eleven is two.

Subtraction

This can then lead onto drawing objects and showing how much has been taken away. You can see here how jottings can be used to solve the following problem.

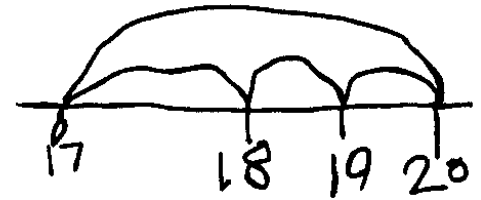*There were 8 balloons. Two popped. How many are left?*

$8 - 2 = 6$

This next example shows how different children have worked out and recorded the answer to the same problem about the children in the class

Subtraction
(using a number square)

29 - 5 = 24

"Start at 29 and jump back 5"

76 – 24 = 52

"Start at 76 jump up 10, 20 and back
21, 22, 23, 24 "

Children will begin to use empty number lines to support calculations. **Counting back:**
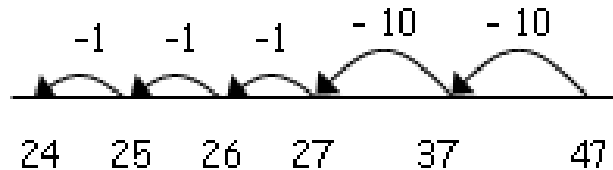
47 – 23 = 24

1. First counting back in tens and ones.

47 – 23 = 24

2. Then helping children to become more efficient by subtracting the units in one jump

47 – 23 = 24

✓ 3. And then Subtracting the tens in one jump and the units in one jump.
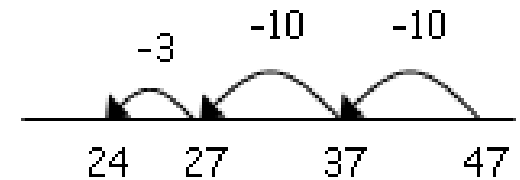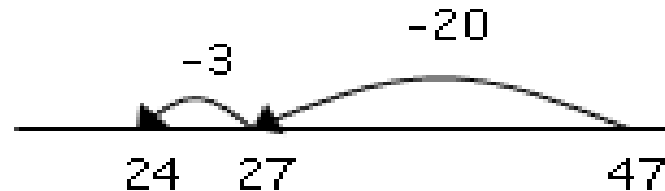
Multiplication

Children will count repeated groups of the same size in practical contexts. They will use the vocabulary associated with multiplication in practical contexts and will solve practical problems that involve combining groups of 2, 5 or 10.

For example socks, fingers and cubes.

'Six pairs of socks.
How many socks altogether? 2, 4, 6, 8, 10, 12'

'Three pots of ten crayons. How many crayons altogether? 10, 20, 30'

Multiplication
(repeated addition)

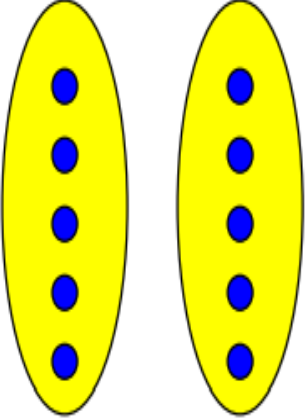5 + 5 + 5 + 5 = 20

2 + 2 + 2 = 6

Multiplication
(drawing and using arrays)
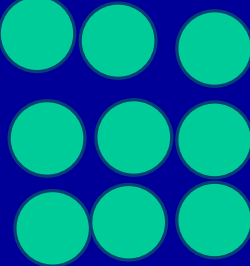
'2 groups of 5'

'How many altogether?'

'5 + 5 = 10'

Double five is ten

3 + 3 + 3 = 9
3 "lots of" 3 = 9
3 x 3 = 9

5 + 5 + 5 = 15
3 "lots of" 5 = 15
3 x 5 = 15

Children will then develop their understanding of multiplication as repeated addition. and use jottings to support calculation on a number line.

3 times 5 is   5 + 5 + 5 = 15   or
3 lots of 5   or   3 x 5

number line

Children should be able to model a multiplication calculation using an array. Children should know that 3 x 5 has the same answer as 5 x 3.

Division
(as sharing)

<u>Sharing -</u> Children will start with practical sharing using a variety of resources. They will share objects into equal groups in a variety of situations. They will begin to use the vocabulary associated with division in practical contexts.
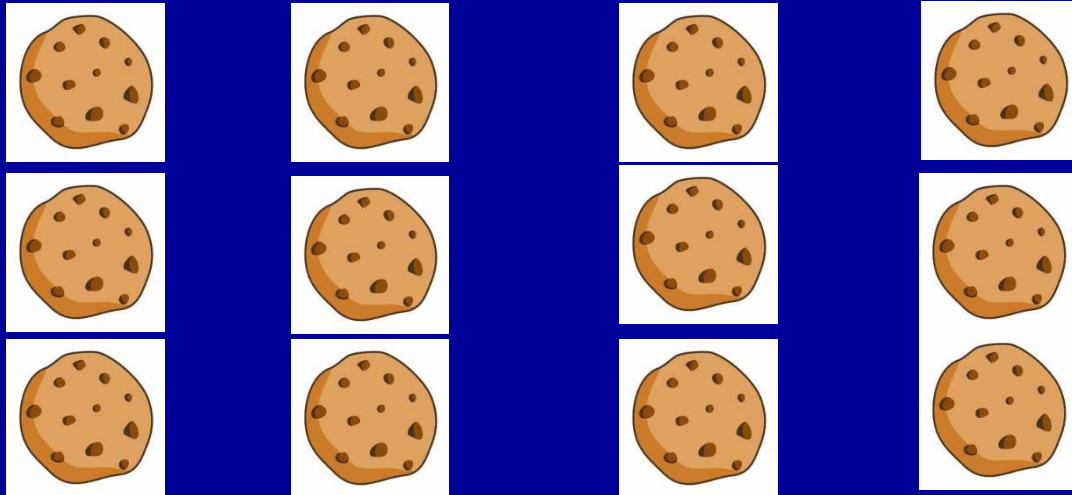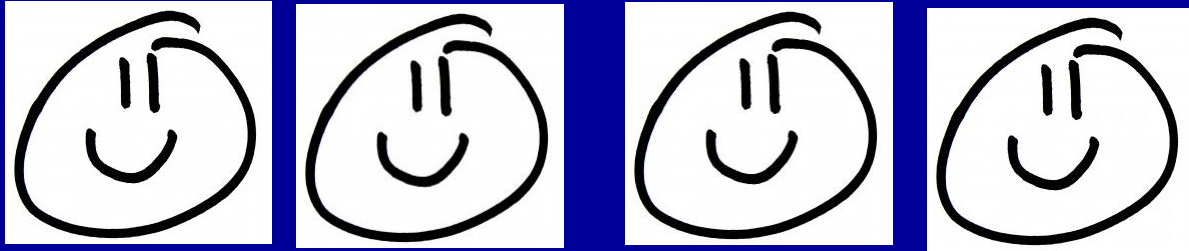
For example: 'Share these eight apples equally between two children. How many apples will each child have?'
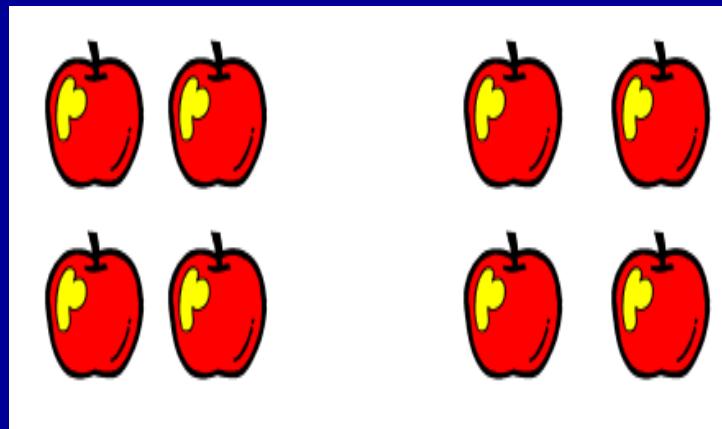
Division
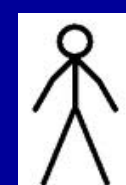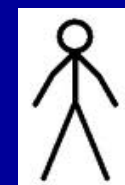## (as sharing)

Share 12 cookies between 4 people...

12 ÷ 4 = 3

Division
(as grouping)

Children will move on from sharing to grouping objects in again in practical ways.

Put 12 people into 6 groups...
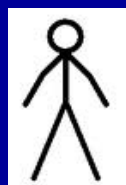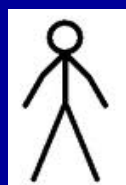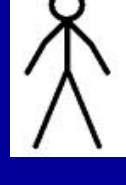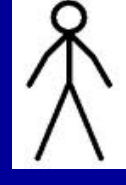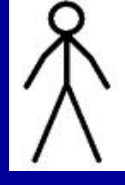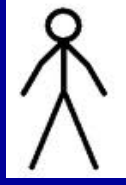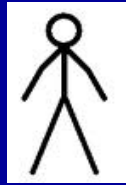
12 ÷ 6 = 2

Division

<u>Remainders</u>

Division equations involving remainders are also solved using the pictorial sharing method. At this point the children should have embedded the knowledge that division needs to be equal. Therefore if it cannot be equal then the remaining ones are left out as remainders. This is introduced as children sharing cakes and if it's not fair then the remaining ones are left out for someone else.

e.g. 7 ÷ 2 = 3 r 1

Using and Applying these skills

Reasoning

After the children have shown that they have a firm understanding of the concepts then they would be required to apply their knowledge in a reasoning form.

We have introduced 'Maths Challenges' into our planning to provide children with opportunities to use and apply the skills that they have been taught.

A selection of Math Challenges are out on the tables for you to look at. These are delivered in addition to the children's daily maths lesson.

End of Key Stage 1 assessment question

End of Key Stage 1 assessment

End of KS1 maths assessment

Children will sit two tests: **Paper 1 and Paper 2:**

- **Paper 1: Arithmetic** - lasts approximately 20 minutes (but this is not strictly timed). It covers calculation methods for all operations.

- **Paper 2: Reasoning** - lasts for approximately 35 minutes, which includes time for five aural questions. Pupils will still require calculation skills and questions will be varied including multiple choice, matching, true/false, completing a chart or table or drawing a shape. Some questions will also require children to show or explain their working out.

Math: Sample Questions

Maths Paper 1: Arithmetic

15 $3 \times 3 =$ ▢

16 $12 \div 2 =$ ▢

Maths: Sample Questions

Maths Paper 2: Reasoning

7
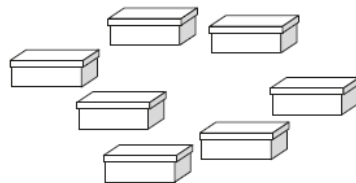
Sita puts **2** shoes in each of these boxes.

How many shoes are there altogether?

	shoes

8 Complete the table.

words	digits
thirty-eight	38
	40
ninety-four	

Maths: Sample Questions

Maths Paper 2: Reasoning

27 Sita has **50** raisins.

She gives **23** to Ben.

She gives **15** to Amy.

How many raisins does Sita have left?

Show your working

_____ raisins

2 marks

Ways to help your child at home

Make sure your child knows their times tables and can answer out of order.

They must be secure with their number bonds to 10, 20 and 100.

Count on <u>and back</u> in ones, tens, hundreds etc from any number (3, 13, 23, 33….. 567, 467, 367.)

Use a variety of mathematical language – all the different ways a sum can be worded.

Relate addition to subtraction and multiplication to division.

Make their learning relevant – get them to work out practical problems.

Eg: *we have 3 people for dinner and 12 slices of pizza – how many will each person get?*

<u>Reasoning skills:</u> ask them to explain how they solved a problem.

How can we help our children?

Give your children opportunity to use maths in real life contexts.

For example spending pocket money , how much do I need? Telling the time and weighing ingredients.

Times tables – 2, 3, 5 and 10

Survey