



# Maths – Parent Workshop – Session 2

Monday 6<sup>th</sup> November



Three elements at  
the core of our  
approach to maths?

Building blocks of maths  
(C..... P..... A.....)

Progression through  
D.....

Intelligent practice through  
procedural and conceptual . . . ?

# Do it

## Do it

$8 \times 7 =$

$80 \times 7 =$

$80 \times 70 =$

## Do it

$6 \times 9 =$

$600 \times 9 =$

$600 \times 90 =$

$600 \times 900 =$

## Do it

$9 \times 8 =$

$9000 \times 8 =$

$9000 \times 80 =$

$9000 \times 800 =$

$9000 \times 800 =$

# Secure it

## Secure it

- $? \times 10 = 840$
- $10 \times ? = 710$
- $340 = ? \times 10$
- $? \times 100 = 3400$
- $2600 = 26 \times ?$
- $? \times 100 = 87,000$
- $? \times 1000 = 24,000$

## Secure it



Mr Hick knows that  $6 \times 7 = 42$  but he needs some help. Can you explain how he can use this to calculate  $60 \times 70$ .

# Deepen it

## Deepen it




- $320 \times 10 = 32 \times \square$
- $12 \times 1000 = 100 \times \square$
- $100 \times \square = 410 \times \square$
- $710 \times \square = \square \times 100$

Create three of your own balances.

## Deepen it

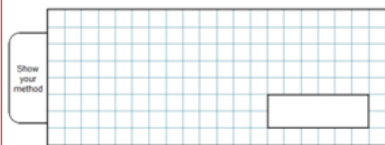
Labels cost 24p each. There are 10 labels in a sheet, 100 sheets in a pack and 1000 packs in a box. How much would a box of labels cost?

A shop sells candles.

		
plain candles 35p each	star candles 65p each	stripe candles 85p each

Sapna buys 4 star candles and 2 stripe candles.  
How much does she pay altogether?

Show your method



2 marks

Special offer  
Buy 10 candles and get 50p off.

Josh buys 10 plain candles in the special offer.  
How much does he pay for the 10 candles?

£

1 mark

Do it:



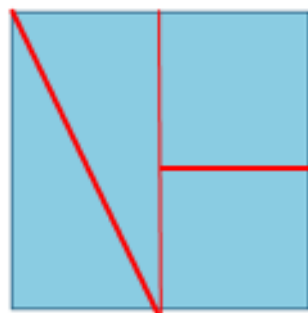
Deepen it

How many different ways can you divide these boxes of donuts into quarters?



Which of these boxes of donuts is divided into quarters?

Secure it

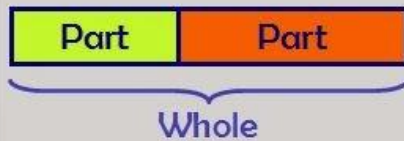


Mr Hick says this box of donuts is split into quarters. Is he correct?

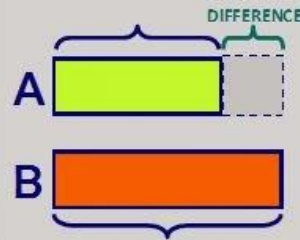
Explain your answer.

# Solving Problems with Bar Modeling

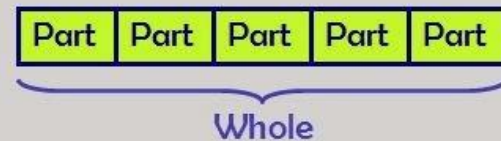
## Part-Part-Whole



## Comparison

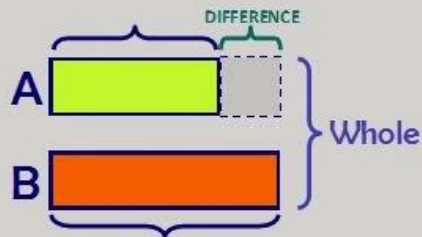


## Equal Parts of a Whole

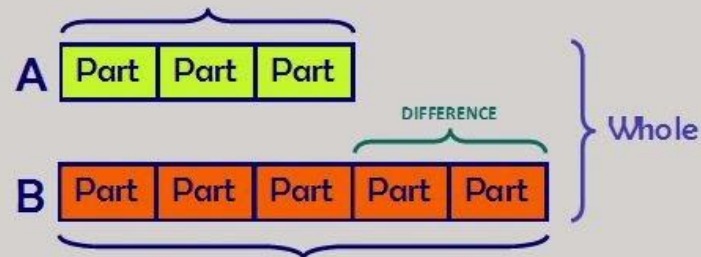


an Equal Part is a UNIT

## Comparison AND Part-Part-Whole



## Comparison AND Equal Parts of Wholes



an Equal Part is a UNIT

## Addition & Subtraction



What relationships does this bar diagram show?

$$a = b + c$$

$$a = c + b$$

$$a - b = c$$

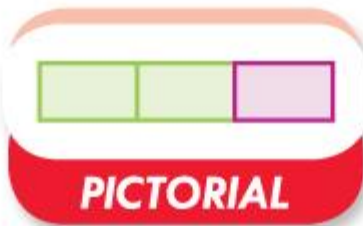
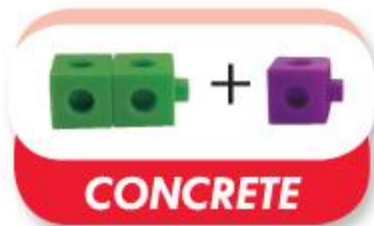
$$a - c = b$$

Sam had 10 red marbles and 12 blue marbles. How many marbles did he have altogether?

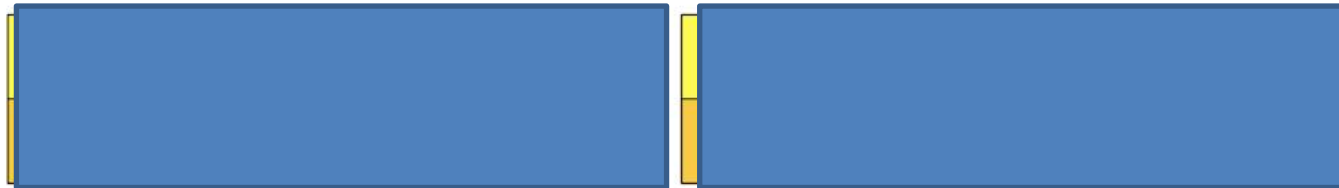
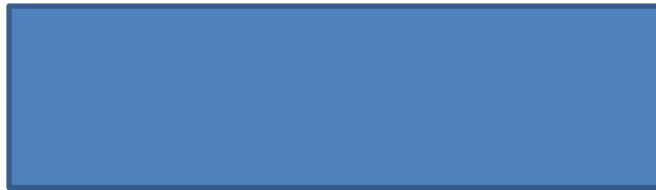
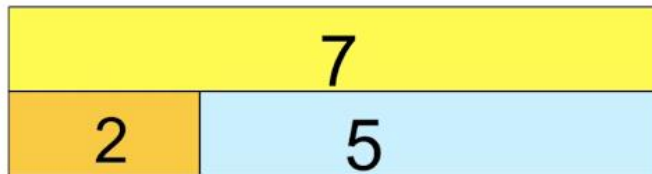
Combine with concrete materials in early stages.



$$10 + 12 = 22$$



# Developing Depth/Simplicity/Clarity





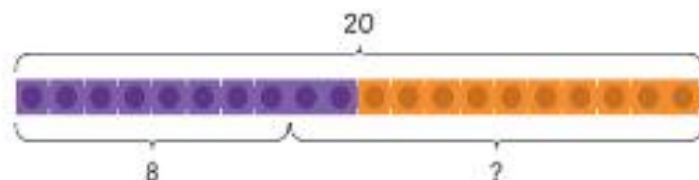
## Concrete - modelling with other objects and pictures



Sam bakes 20 cookies.  
What if he gives some away?



Let's use   to help us.



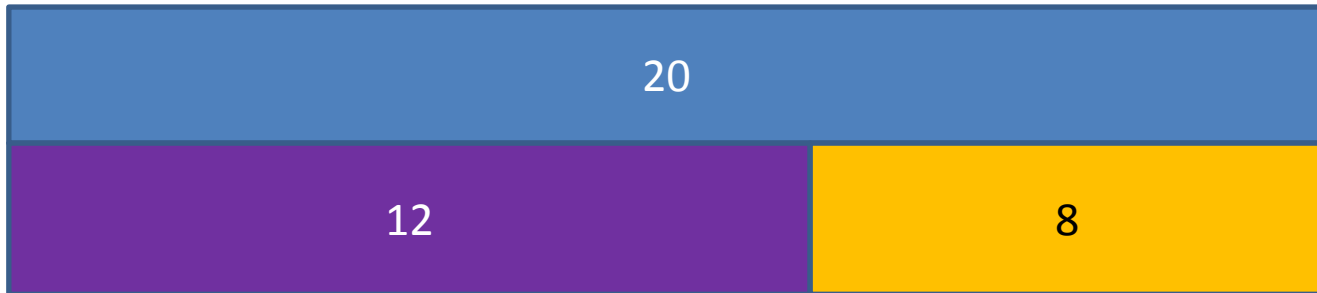
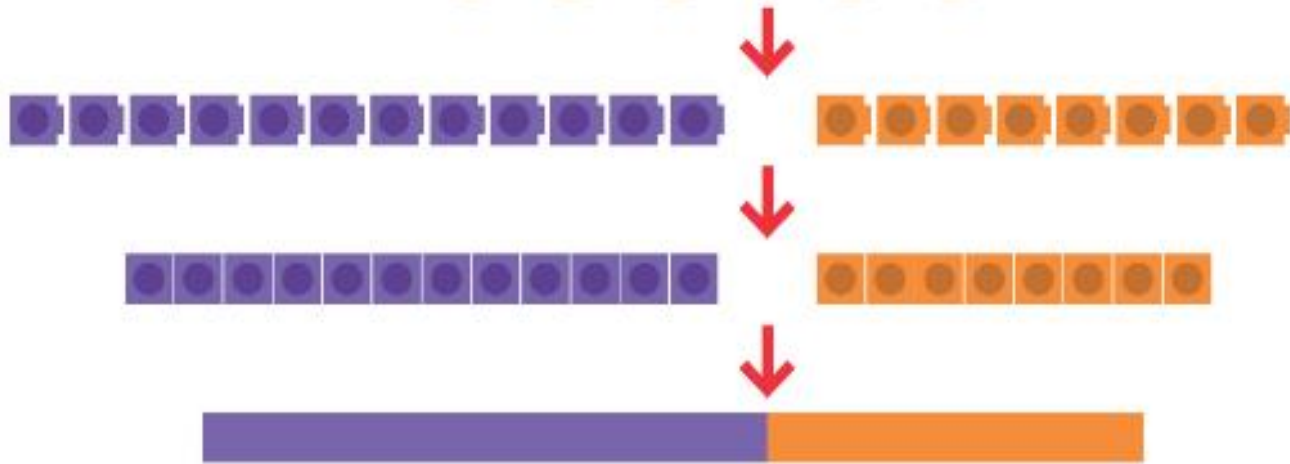
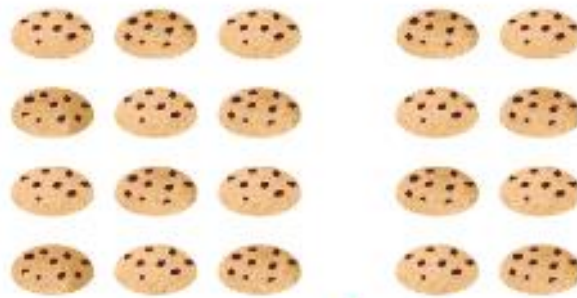
What if Sam gives away 8 cookies?

$$20 - 8 = \square$$

Then, Sam would have  $\square$  cookies left.

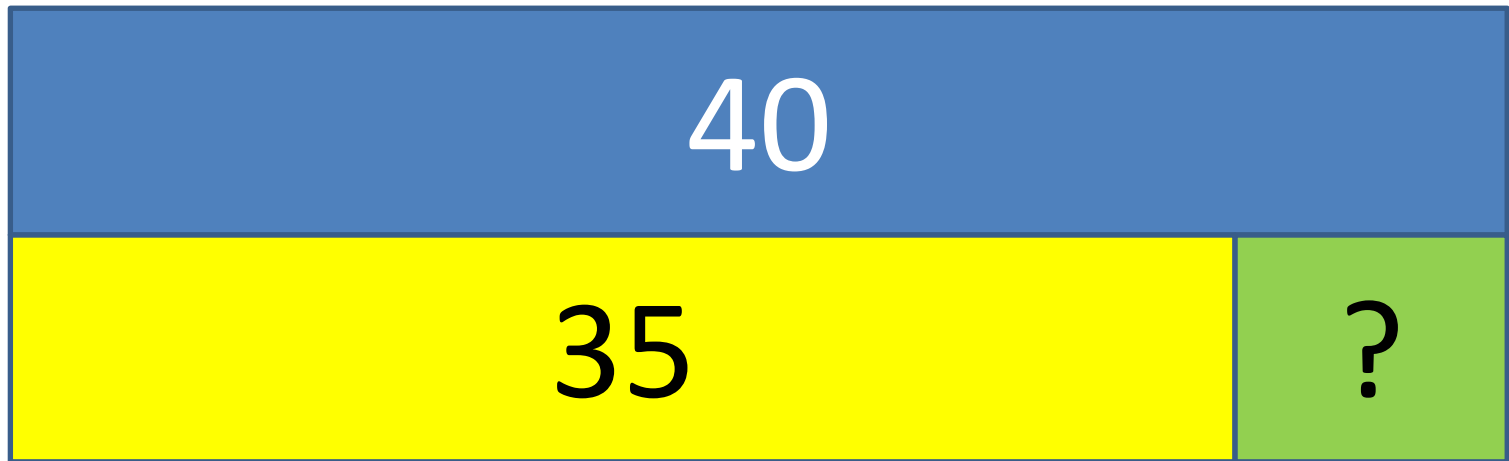


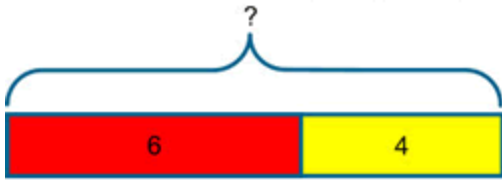
Concrete to pictorial - drawing



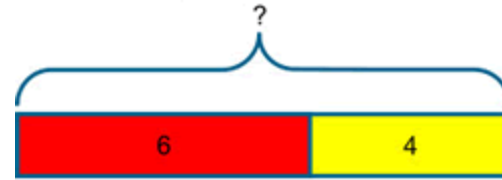
$$40 - ? = 35$$

Could you represent this pictorially using the bar model?

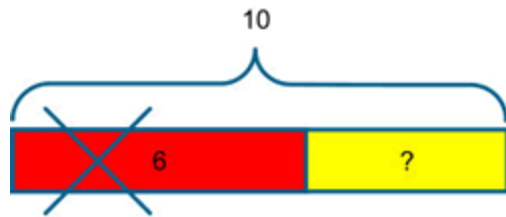




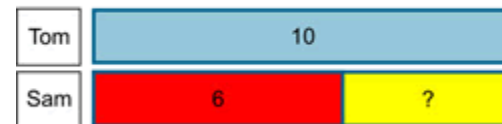
I have 6 red pencils and 4 yellow pencils. How many pencils do I have?



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



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



Tom has 10 pencils and Sam has 6 pencils. How many more does Tom have?

## Equivalence



Could children write their own problems?

## Multiplication



**Peter has 4 books**

**Harry has five times as many books as Peter.**

**How many books has Harry?**

$$4 \times 5 = 20$$

Harry has 20 books

## Division

Mr Smith had a piece of wood that measured 36 cm.  
He cut it into 6 equal pieces.  
How long was each piece?



$$36 \div 6 = 6$$

Each piece is 6 cm

## Proportion, fraction and percentages etc.

In a class, 18 of the children are girls.  
A quarter of the children in the class are boys.

**Altogether, how many children are there in the class?**



Show your working



A computer game is £24 in the sale. This is one quarter less than its original price. How much did it cost before the sale?





Ralph posts 40 letters, some of which are first class, and some are second.

He posts four times as many second class letters as first.

How many of each class of letter does he post?



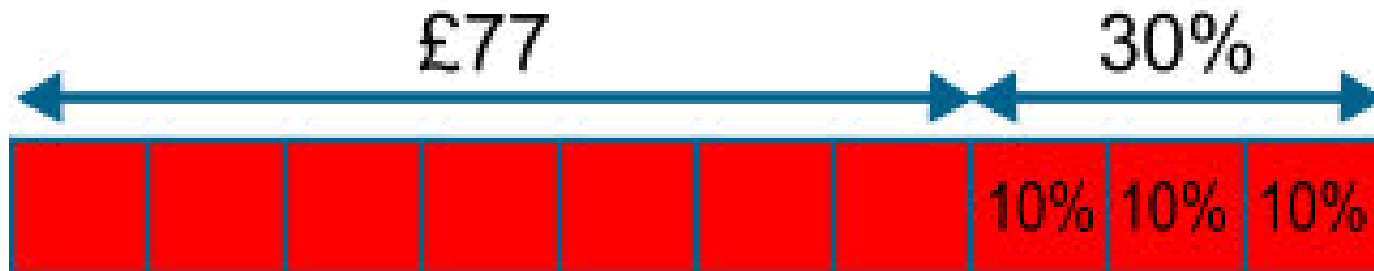
Ralph posts 40 letters, some of which are first class, and some are second.

He posts four times as many second class letters as first.

How many of each class of letter does he post?



A computer game is reduced in a sale by 30%.  
Its reduced price is £77. How much was the  
original price?



Final Challenge:

Sam has 5 times as many marbles as Tom. If Sam gives 26 marbles to Tom then the two friends will have exactly the same amount. How many marbles do they have altogether?

