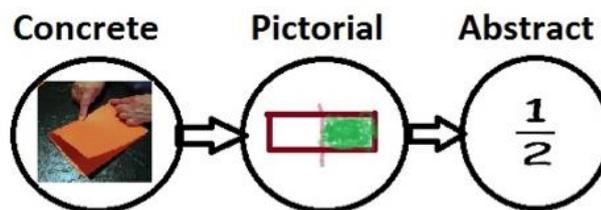# Calculation Policy for Parents

Key Stage 1

Introduction

At West Acton, we believe children should have the opportunity to develop and consolidate their calculation skills using a range of resources and real-life activities to support their understanding. Mathematical understanding is developed through use of representations that are first of all concrete (e.g. Numicon, Base 10, bead strings), and then pictorial (e.g. number lines and arrays) to help children understand abstract working (e.g. Column addition, long multiplication).Children are encouraged to understand the ideas that underpin the calculation rather than simply memorising number facts and are given opportunities to apply their calculating skills throughout the curriculum to develop their fluency and understanding.

Ideas to support your children at home

| Counting:	- Encourage children to count objects around the house in groups (e.g. How many socks do you have in your drawer? Let's count them in 2's) How much cutlery is needed for the table? Count in 3's. - Give children opportunities to count coins and to use money in shops where possible. - Play games that involved counting such as snakes and ladders and dice games. - Practise counting together in 2's, 3's 4's etc. both forwards and backwards.
Number Facts:	- Help children to learn number bonds (to 20 by the end of year 2) by playing 'Ping Pong.' Give your child number such as 7 and ask them to tell you the corresponding number that would make 10. These can be used to find larger number bonds. For example, if you know that 7 + 3 = 10, can you work out 70 + ? = 100? - Give children real life problems to solve such as 'We had 10 apples and we have eaten 7. How many will be left?' - Give children opportunities to share things in equal groups, such as food or toys. - Look out for number plates on cars. Can you add the total?

Useful websites

http://www.topmarks.co.uk/Interactive.aspx?cat=12

http://www.bbc.co.uk/bitesize/ks1/maths/

http://www.crickweb.co.uk/ks1numeracy.html

Addition

West
Acton
PRIMARY
SCHOOL
"A welcoming community,
growing and learning together"

Stage 1

Children are taught that addition is the combing of amounts. They use this in real life situations, such as I have 5 sweets and someone gives me 2 more. How many do I have? Numicon, counters and other objects are used as resources to support children's understanding of combining amounts.
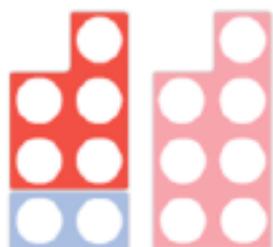
5 +2=7

Children are encouraged to record their own images of adding alongside formal number sentences.

Make 6

2 and 4   3 and 3   4 and 2
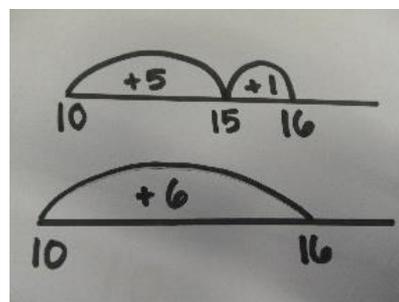
0 and 6   1 and 5   5 and 1
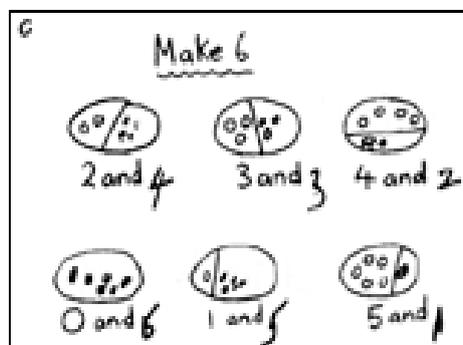
Stage 2

Children use Base 10 to support their understanding of addition. They also begin to record their calculations on a number line. Numicon and bead strings may also be used at this stage.

11 + 5 = 16

11 cubes are lined up (1 ten and 1 unit/one).
5 cubes are added to the line of 11 giving a total of 16.

11   +   5

+5   +1
10   15   16

+6
10   16

Stage 3

Children continue to use Base 10 to support their calculations. They will combine the two amounts they are adding, represent this using pictures and then use a calculation. They can also use a number line. These strategies will be used with numbers up to 100.

34 + 23 =

||| :: || ::
30+4   20+3

34 + 23 =

||||| ::
50 + 7 = 57

34 + 23 =
20   3
+3   +20
34   37   57
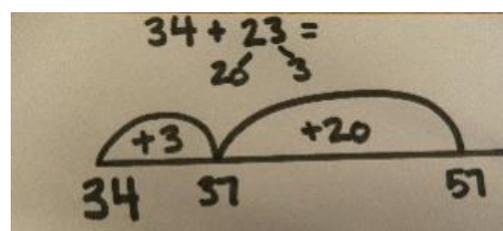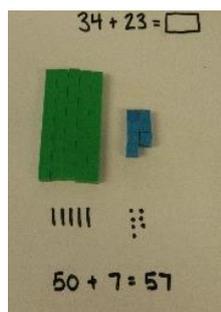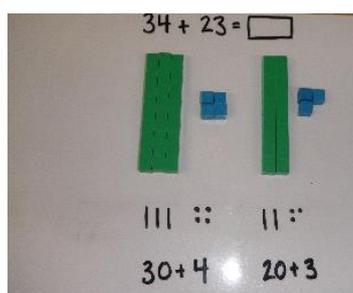
Subtraction as taking away

Stage 1

Children begin by understanding subtraction as taking away in practical, real-life situations. For example, I had 8 toys and gave 5 away. How many do I have left? They use real objects and represent their thinking in pictures. They begin to link this to a number line and may use bead strings to support their understanding.
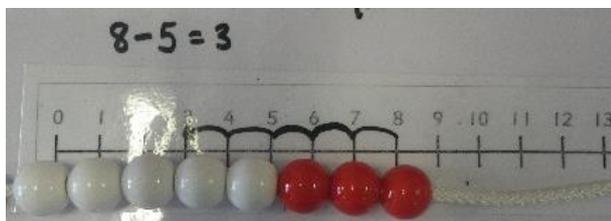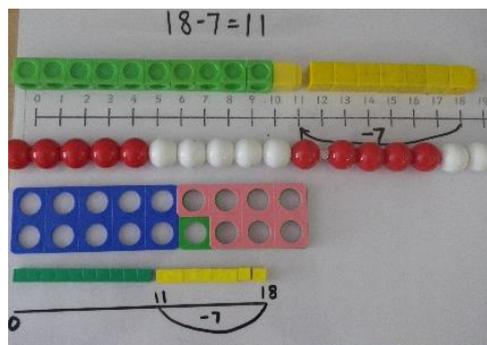

Stage 2

Children use a range of practical resources to show taking away and continue recording on a number line. Children can use their number bonds to 20 help them jump in steps larger than 1.
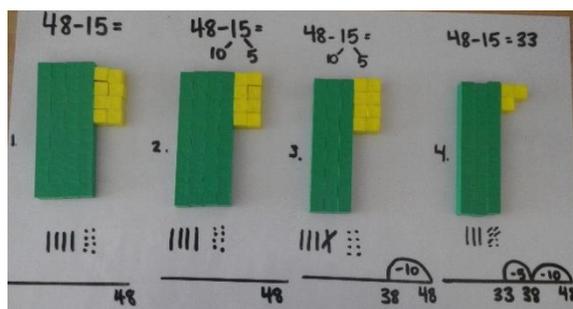
There are 18 people on the bus. 7 get off. How many are left?

Stage 3

Children use Base 10 to support their calculations as necessary. They will make the larger number and take away the smaller amount, recording using images of the Base 10 or a number line.

Subtraction as finding the difference

Alongside taking away, children are encouraged to think of subtraction as finding the difference between amounts. For example: Sam has 8p and Ben has 5p. How much more money does Sam have than Ben? What is the difference between 8 and 5? Children are encouraged to physically compare objects before representing their calculating using a number line. This is repeated with larger numbers and is used to solve problems such as 37 children walk to school. 15 take the bus. How many more children walk?
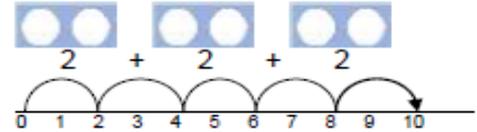
Multiplication

Stage 1

Children are encouraged to begin to use the language of multiplication (lots of, groups of) in the context of practical activities, for example counting familiar objects in groups such as pairs of socks or hands.

This is linked to the use of Numicon and a number line and extended to include groups of larger amounts and counting in multiples including coins.

Counting multiples of coins: 2p, 5p, 10p

Stage 2

Children understand multiplication as repeated addition that can be done by counting in equal steps/groups. This is developed through repetition counting in multiples of 2, 3 4, 5 and 10.
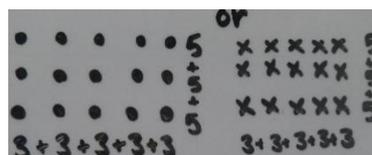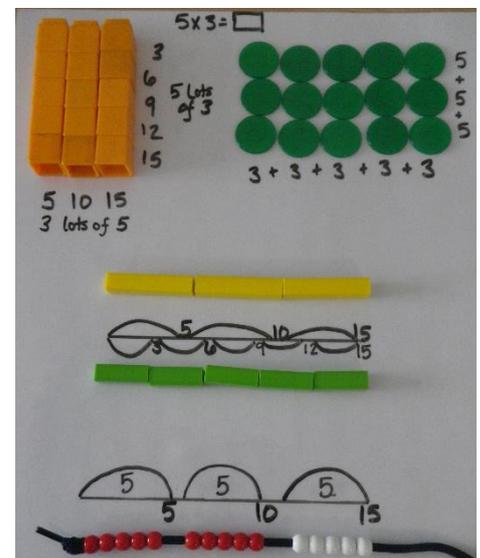
Children are then introduced to the image of a rectangular array, through real items such as egg boxes, muffin trays, ice cube trays etc. and using these to show that counting up in equal groups can be a quicker way of finding a total. They understand that 3 x 5 = 5 x 3

Stage 3

Children use a range of resources like Cuisenaire, bead string, Numicon and multi-link cubes to represent multiplication. They link this to repeated addition on a number line.

Children also begin to make arrays using pictures to help them understand.

By Year 2 children will be introduced to learning their 2's, 5's and 10's times tables when they have developed an understanding of the concept of multiplication.

Division

Stage 1

Children are encouraged to develop a mental image of the number system in their heads to use for calculation. They should experience practical opportunities involving **equal** groups and **equal** sharing.

Equal sharing: 6 football stickers are shared equally between 2 people, how many do they each get? Children may solve this by using a 'one for you, one for me' strategy until all of the stickers have been given out.
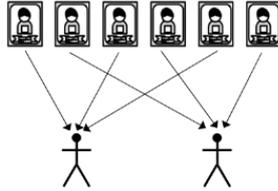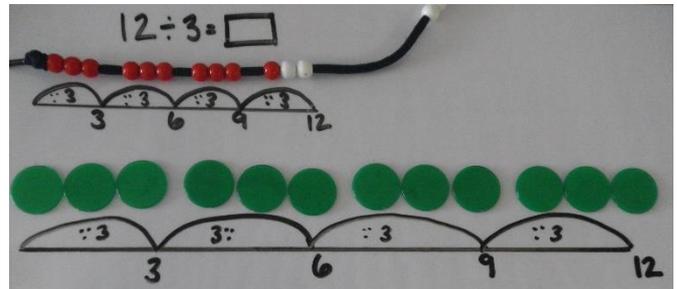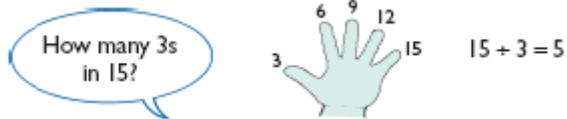

Equal grouping: (How many groups of 2 are there in 6?) There are 6 football stickers. How many children can have 2 stickers each?

Stage 2

Children use their counting skills to work out simple division calculations. They also use resources such as counters and bead strings to develop their understanding of grouping. This is linked to their knowledge of multiplication.

How many 3s in 15?

$15 \div 3 = 5$

Stage 3

Children continue to use practical equipment to represent division calculations as grouping and use jottings to support their calculation.

24 ÷ 4 = ?   Children begin to read this calculation as How many groups of 4 are there in 24? or What is 24 divided into groups of 4?

They show what this would look like using a range of practical resources and through pictorial representations including the number line.