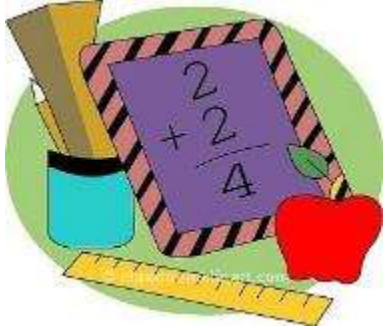



# Purbrook Junior School

Learning together, working together, growing together

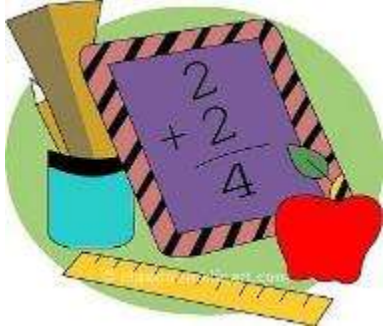
# Year 5 Maths Workshop
# Calculation: Addition & Subtraction

**Welcome!**

**Grab a tea/coffee and get stuck in to the warm-up on the front of your handout…**

## Magic Square

| | | | | |
|---|---|---|---|---|
| 23 | 10 | 17 | 4 | 11 |
| 6 | 18 | 5 | 12 | 24 |
| 19 | 1 | 13 | 25 | 7 |
| 2 | 16 | 21 | 8 | 20 |
| 15 | 22 | 9 | 16 | 3 |

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## Magic Square

The number 16 towards the bottom left corner should in fact be 14.

| | | | | |
|---|---|---|---|---|
| 23 | 10 | 17 | 4 | 11 |
| 6 | 18 | 5 | 12 | 24 |
| 19 | 1 | 13 | 25 | 7 |
| 2 | 16 | 21 | 8 | 20 |
| 15 | 22 | 9 | 16 | 3 |

# Aims of the session:

- Share the **calculation-based learning** that is currently taking place in Year 5
- Share information regarding progression in **addition and subtraction - methods**
- Provide **useful ideas/resources** for supporting your child with their mathematical learning
- To engage in games and calculation activities **with your child and their peers**

# What is your child currently learning in maths?

Department for Education

**Mathematics**
**Programmes of study for Key Stages 1-2**

**February 2013**

## YEAR 5 PROGRAMME OF STUDY

**Addition and subtraction**

Pupils should be taught to:

- add and subtract whole numbers with more than 4 digits, including using **efficient written methods** (columnar addition and subtraction)

- add and subtract numbers **mentally** with increasingly large numbers

- **use rounding to check answers** to calculations and determine, in the context of a problem, levels of accuracy

- solve addition and subtraction **multi-step problems in contexts**, deciding which operations and methods to use and why.

# How could I solve this?

The aim is for children to do mathematics in their heads, and if the numbers are too large, to use pencil and paper to avoid losing track.

To do this children need to learn quick and efficient methods, including appropriate written and mental methods.

# We want children to ask themselves...

*Can I do this in my head?*

*Can I do this in my head using drawings or jottings?*

*Do I need to use a written method?*

*Do I need a calculator?*

*<u>Finally</u> – Is my answer sensible?*

# Progression in Calculation - Addition

Addition

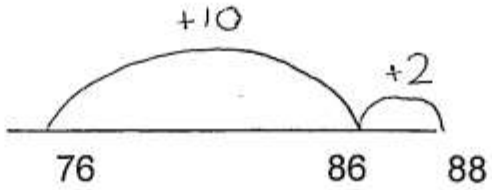
Using pictures and images.

5 + 4

= 9

Continue with larger numbers which cross the 10s.

76 + 12




Number line.
Add smallest number onto largest. Then bridge across 10s and 100s.

76 + 47

76 + 40 + 7

Partition smaller number.

No number line now but partitio smaller number to add it to larger.
Then do the same bridging 10s and 100s.

76 + 47

7 + 6 = 13
40 + 70 = 110
123

Partition then recombine.

Then complete examples that bridge over 10 and 100.

Year 3 minimum expectation (new curriculum)

76 + 47

76
47

13 (7+6)
110 (40 + 70)

123

Adding the least significant digit first. Do not spend long on this. Use it as preparation for carrying.

Year 4 minimum expectation (new curriculum)

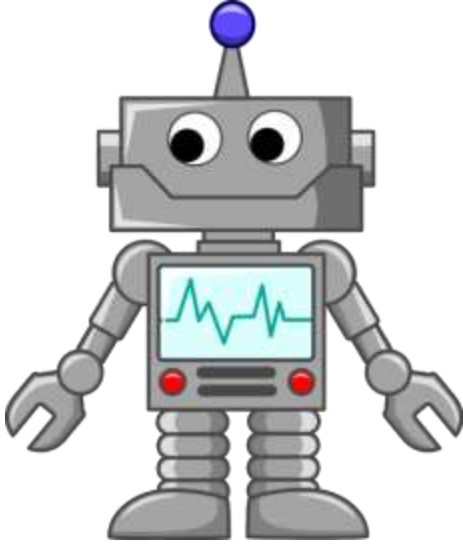
76 + 47

47
+76
123
1

Carrying
Ensure children's place value is secure and the vocabulary used when teaching this method is correct in terms of hundreds, tens and units.

# Mistakes children make:

What is the total of 8004 and 7989?



8004
+7989

In your head!

29
+29

In your head!

£1 3.08
+£2.5 6

Misplacing digits!

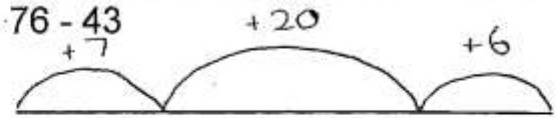
# Progression in Calculation - Subtraction

Subtraction

Using pictures and images.
11 - 3

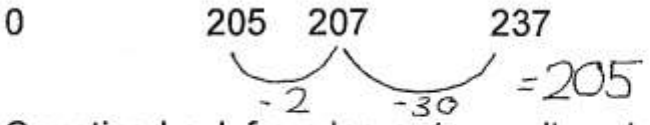
= 8

Continue with larger numbers which cross the 10s.




Counting up from smaller to larger

237 - 32 =33




Counting back from larger to smaller when first number is a lot larger than the number to be subtracted.
Number lines.

Teach both of these methods together so that the children understand that even when counting forwards they are finding the difference.

372 - 288

| | | |
|---|---|---|
| 300 | 70 | 2 |
| -200 | 80 | 8 |
| 300 | 60 | 12 |
| -200 | 80 | 8 |
| 200 | 160 | 12 |
| -200 | 80 | 8 |
| 0 | 80 | 4 = 84 |

Partition then decomposition

Year 3 minimum expectation (new curriculum)

372 - 288

2 16
~~3~~ ~~7~~ 12
-2 8 8

8 4

Decomposition

# Mistakes children make:

$$\begin{array}{r} \cancel{1}^{1}6 \\ -\ \ 9 \\ \hline \end{array}$$

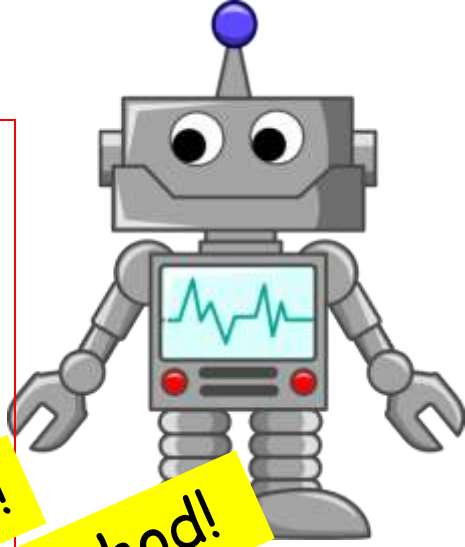
In your head!

£20,000

-£3,204

Number line!

Informal method!



$$\begin{array}{r} 181 \\ -\ \ 64 \\ \hline 023 \end{array}$$

Switching digits mentally!

91-63

90-60=30

1-3=2

Partition smaller number

# Ideas for supporting your child with their mathematical learning at home:

- Oral rehearsal of number facts required to calculate
- The opportunity to TALK about maths problems and their thinking when solving them
- Use of maths websites (see handout)
- Fun - playing games (see handout)
- Number problems! Solve together and discuss strategies! (see handout)

FINALLY…
The opportunity to engage in games and calculation activities **with your child and their peers…**

You need a set of digit cards from 1 to 7.

1 2 3 4 5 6 7

Arrange your cards with + signs between them.

Use each card once.

How close can you get to a total of 100?

Here is an example.

**Target 100**

52 + 13 + 46 + 7 = 118

Can you get closer to 100?

Put these eight cards in three groups.

1 2 3 4 5 6 7 8

**Three Groups**

There must be at least one card in each group.

In each group, the sum of the numbers of the cards must be the same.

Find three different ways to do it.

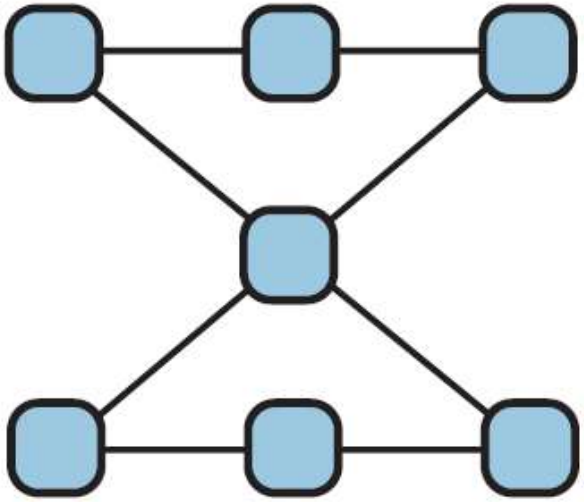
# Grid challenge

You need seven number cards like these.

1 2 3 4 5 6 7

Arrange the cards on this grid.

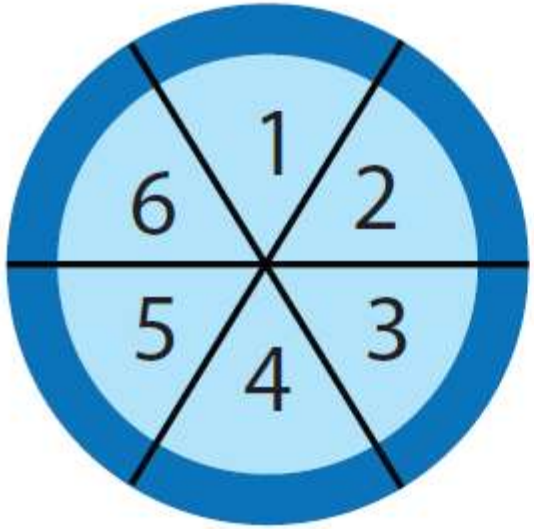
Each line of three numbers must add up to 12.



Can you find two other ways to do it?

# Dart 26

Three darts land on this board.




Darts in the outside ring score double that number.

More than one dart can land in an area.

Find different ways of scoring 26.

How many different ways can you find?

Mrs Fardy's Maths Group:
http://nrich.maths.org/1151