

Numeracy Workshop at St Joseph's School

100 Square

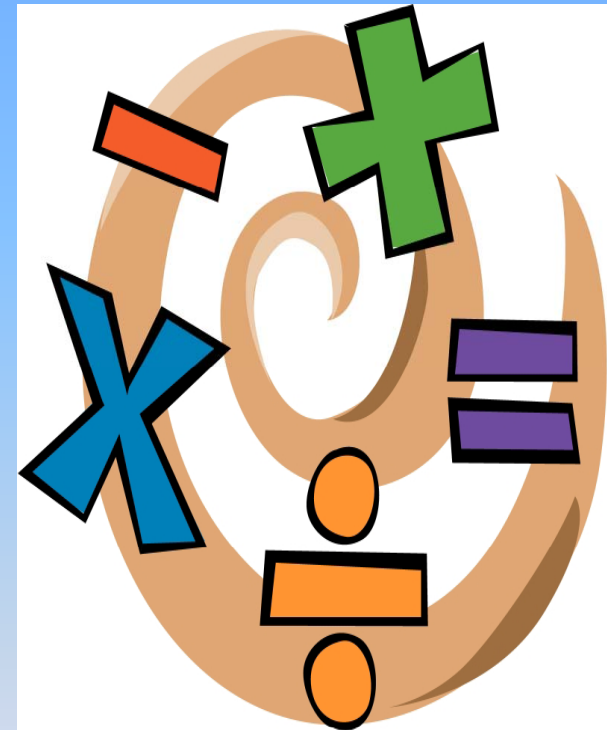
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Mental and Written Calculations



Outline of Meeting

- Maths in our school
- Expectations
- Mental Maths strategies
- Mental Maths to the test
- Written Methods (workshops)
- New Curriculum



Starter 1

In silence read the following carefully before starting work:

1. Add 17 to 170

2. Multiply 12 by 2

3. Subtract the first even number from the second square number

4. Divide a million by a thousand

5. Write out the first 5 multiples of 20

6. Multiply this year by last year

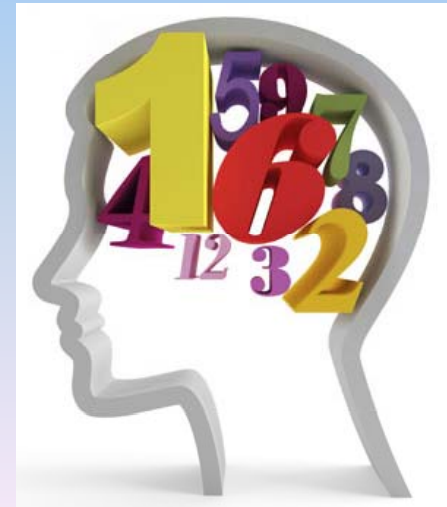
7. If $2(x + 3)$ is 6 add $2x$ what is the value of x

8. Write down all the numbers that have 6 as a factor, up to 100

Now that you've read all the questions only do number 1, then smile and put your finger on your lips

The aim

- ❖ 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 methods.



In daily maths lessons we aim to...

- encourage pupils to use mental calculation strategies
- to practise recall of number facts to become faster and more accurate
- teach the children to be more aware of the strategies they use to calculate
- use vocabulary correctly
- help children gain confidence about maths
- **make maths fun!**



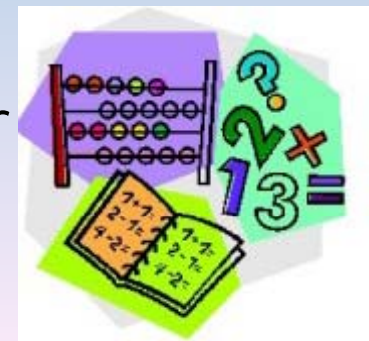
What can a numerate child do?

By the age of 11, we hope each child will:

- have a sense of the size of number and where it fits into the number system
- know by heart addition and subtraction facts to 20, multiplication and division facts to 12×12 , doubles and halves, complements to 100, multiply and divide by 10 and 100
- use what they know to figure out answers mentally

What can a numerate child do? (cont.)

- calculate accurately and efficiently, both mentally and on paper, using a range of strategies
- recognise when it is appropriate to use a calculator - and when it is not - and be able to use one effectively
- explain their methods and reasoning using correct mathematical terms
- judge whether their answers are reasonable and have strategies for checking them where necessary



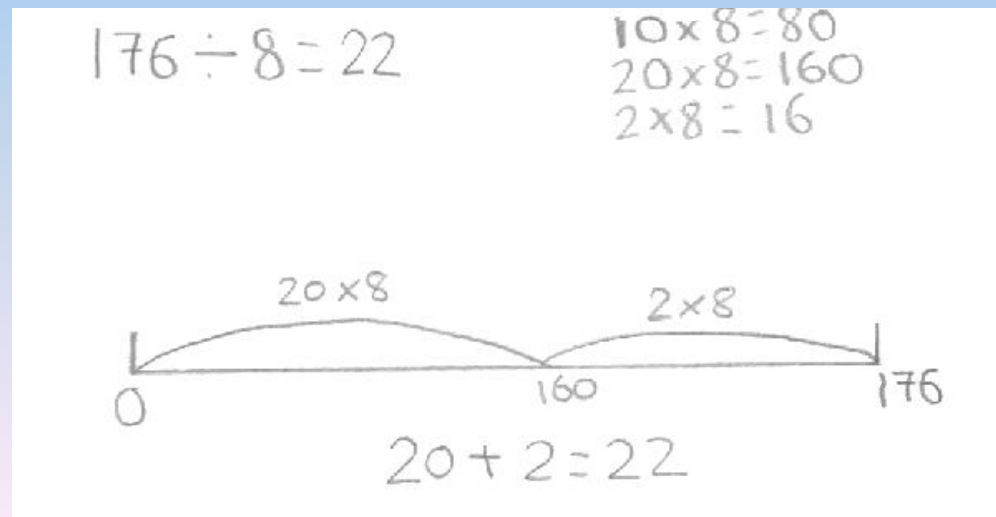
We want children to ask themselves:

Can I do this in my head?

Can I do this using drawings or jottings?

Do I need to use an expanded or compact written method?

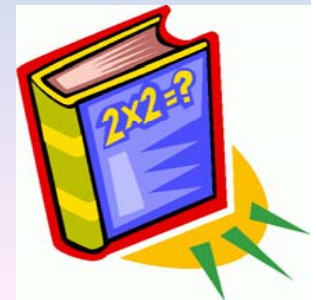
Do I need a calculator?



Mental Strategies

- Addition and Subtraction strategies might be:
- Counting forwards and backwards in equal steps – 2,5,10 even 25, 50 etc
- Reordering – $8 + 3 + 5 + 2 =$ or $21 + 45 =$ Look at which numbers could be added first or putting the larger number first.
- Partitioning – recognising the place value of the numbers in order to support + and -. Eg.
 $45 + 23 = 45 + 20 + 3$
- $76 - 25 = 76 - 20 - 5$

- Compensating – if asked $45-19$ the children would take 20 first and add one or $85 + 68$ the children would add 70 and then take away 2.
- Using near doubles – $38 + 35$ – is double 35 add 3, $1.5 + 1.6$ – double 1.5 add 0.1
- Knowing multiplication and their corresponding division facts
- Multiplying and dividing by multiples of 10 – teaching the children that the numbers move around the decimal point. It is not the decimal point that moves!
- Doubling and halving



Now let us see how good our mental maths skills are!!!

- 2007 Year 6 Mental Maths Test
- Place your answers in the box provided. You may complete any jottings around the paper.
- **WE WILL NOT BE MARKING THEM!!!!**

Foundation Year Maths

- Children count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number.
- Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer.
- They solve problems, including doubling, halving and sharing.

IN FOUNDATION YEAR THERE IS A HUGE EMPHASIS ON PRACTICAL MATHS



Key Stage 1

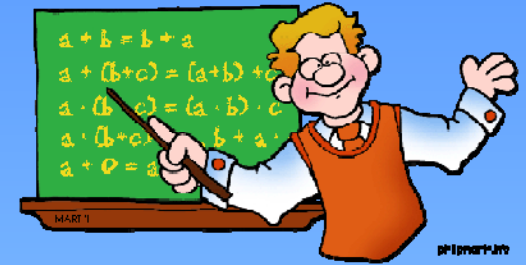
- Maths continues to be practical in Year 1.
- The children use empty number lines and record their calculations with equal jumps.
- Many of the mental tasks are through repetition – counting in equal steps forwards and backwards, being able to respond to number bonds to 10/20 in different ways. Eg. $9+7=16$, $7+9=16$, $16-7=9$, $16-9=7$
- The children are encouraged to write the number story! $12 + 3 = 15$

In Year 2.

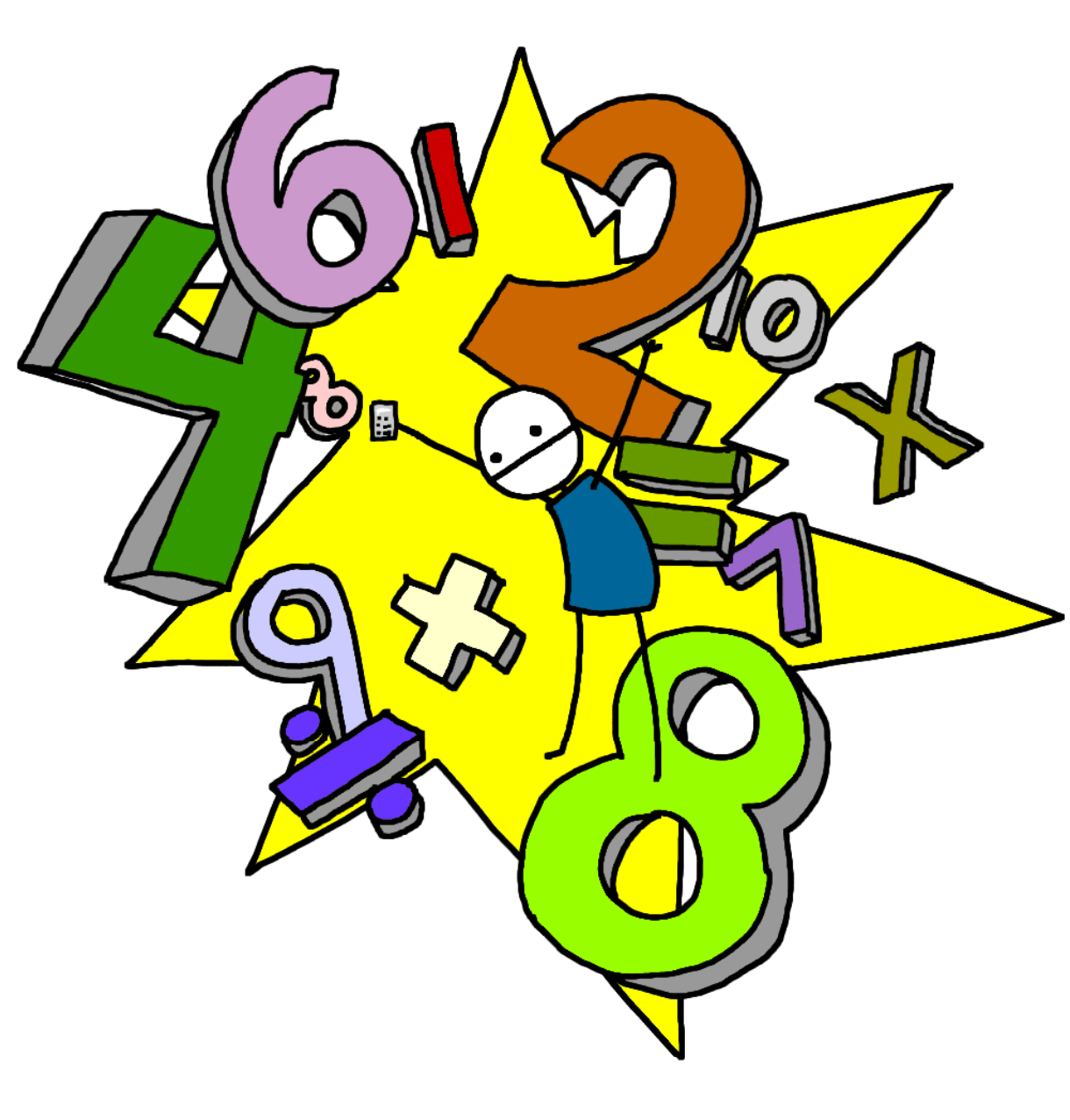
- There will still be practical opportunities and repetition of number facts, multiplication and division facts.
- The aim is now to develop speed and awareness of numbers.
- The children will become more confident in using the jottings method for written calculations. (See handout)



Written Methods



- Each of the teachers will be modelling the correct methods we use for written calculations.
- The purpose of this is to demonstrate the progression of the methods that we use throughout our school. Your child may still be in Key Stage One but they will need these methods as they move through the school.



Draft Curriculum Proposals

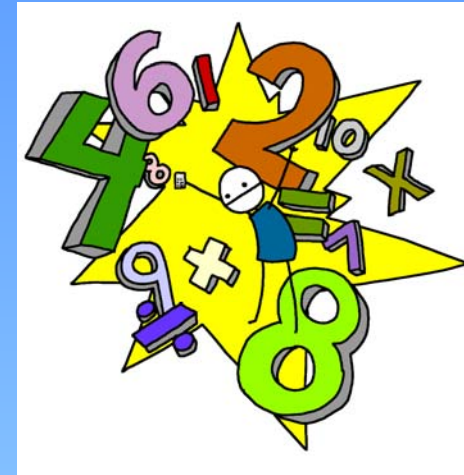
September 2013

- The new curriculum is coming into effect in September 2013.
- The expectations for a Year 2, Year 4 and Year 6 child are in your handouts.
- The changes that have been made are showing an increased expectation of achievement for the children.

Year 4 Expectations - Number

- **Number, place value and rounding**
- Pupils should be taught to:
- ☐ read and write numbers to at least 10,000
- ☐ recognise the place value of each digit in a 4-digit number (thousands, hundreds, tens, and ones)
- ☐ order and compare numbers up to 10,000
- ☐ count in multiples of 2, 3, 4, 5, 6, 7, 8, 9, 10, 25, 50, 100 and 1000 from any given number, and 10 or 100 more or less than a given number
- ☐ round any number to the nearest 10 or 100
- ☐ read and write negative numbers; order, count forwards and backwards with positive and negative whole numbers through zero
- ☐ read Roman numerals to 100 and understand how Hindu-Arabic numerals included the concept of zero and place value
- ☐ solve word problems that involve negative and increasingly large positive numbers.

Cont.



- **Addition and subtraction**
- Pupils should be taught to:
- add and subtract numbers using formal written methods with up to 4 digits
- accurately add and subtract numbers mentally including two 2-digit numbers
- estimate, within a range, the answer to a calculation and use inverse operations to check answers.

Cont.

- **Multiplication and division**
- Pupils should be taught to:
- ☐ recall multiplication and division facts for multiplication tables up to 12×12
- ☐ mentally perform multiplication and division calculations quickly and accurately, including multiplying by 0 and dividing by 1
- ☐ multiply or divide 2-digit and 3-digit numbers by a 1-digit number using formal written methods; interpret remainders appropriately as integers
- ☐ recognise and use factor pairs within 144
- ☐ solve word problems involving the four operations.

How can you help?

Talk about
how you
do maths

Give praise and
encouragement



Be positive

Ask your
child to
explain

Make sure maths is fun!

Useful resources and links:

Check out the excellent resources on the BBC schools website.
There is now a Key Stage 1 Bitesize section:

<http://www.bbc.co.uk/schools/ks1bitesize/numeracy/>

as well as KS2:

<http://www.bbc.co.uk/schools/ks2bitesize/maths/>

There are lots more activities on these websites:

<http://www.woodlands-junior.kent.sch.uk/maths/>

<http://nrich.maths.org/public/>

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

<http://www.crickweb.co.uk/ks2numeracy.html>

<http://www.amblesideprimary.com/ambleweb/numeracy.htm>

<http://www.ictgames.com/resources.html>

Thank you!

- Thank you for coming tonight and supporting the teaching of Maths at St. Joseph's School.
- If you have any concerns regarding any of the methods as your child approaches them, please do not hesitate to arrange a suitable time to speak to your child's class teacher