

Parent Workshop

Years 5 and 6

Maths at Our Lady of Peace Catholic Primary and Nursery School



Workshop Aims

- 1. The aims of the KS2 Maths Curriculum.**
- 2. Objectives for each year group.**
- 3. Calculation methods taught to children.**

Aims of the KS2 Maths Curriculum

- **Fluency**
- **Reasoning**
- **Problem Solving**

Fluency – Years 5 and 6

- **Recalling multiplication and division facts up to 12×12 (end of Year 4).**
- **Recognise and use the place value of digits in numbers up to 10 million (10,000,000).**
- **Use negative numbers, including in contexts such as temperature.**
- **Identify common factors, common multiples and prime numbers.**
- **Read Roman numerals, including years.**

Reasoning and Problem Solving

- **Make generalisations, construct arguments, explain ideas using mathematical language.**
- **Apply mathematics to a variety of problems, break problems down into small steps, persevere in seeking solutions.**

Aims of the KS2 Maths Curriculum

- **High expectations**
- **Focus on core skills and subject knowledge**

What does that mean for our pupils?

- **Aim to achieve ‘Mastery’ of maths curriculum.**
- **Range of opportunities for children to apply knowledge/skills in different contexts**

Year 5 Objectives

- **Recognise and use the place value of digits in numbers up to 1 million (1,000,000).**
- **Round any number to the nearest 10, 100, 1,000, 10,000 or 100,000.**
- **Add and subtract whole numbers with more than 4 digits, including using formal written methods (column addition and subtraction)**
- **Use a written method to multiply 4 digit numbers by 1 or 2 digit numbers.**
- **Use a written method to divide 4 digit numbers by 1 digit numbers.**

Year 5 Objectives

Fractions

- **Put fractions with the same denominator into size order, for example recognising that $3/5$ is larger than $2/5$.**
- **Find equivalents of common fractions.**
- **Convert between improper fractions and mixed numbers, for example recognising that $5/4$ is equal to $1 \frac{1}{4}$.**
- **Add and subtract simple fractions with related denominators, for example $2/3 + 1/6 = 5/6$.**
- **Convert decimals to fractions, for example converting 0.71 to $71/100$.**

Year 6 Objectives

- **Work with numbers to up ten million (10,000,000) including negative numbers.**
- **Round any number to the nearest 10, 100, 1,000, 10,000 100,000 or 1,000,000.**
- **Use a written method for column addition and subtraction for values up to 6 digits.**
- **Use a written method to multiply 4 digit numbers by 2 digit numbers.**
- **Use a written method to divide 4 digit numbers by 2 digit numbers.**

Year 6 Objectives

Fractions

- **Use common factors to simplify fractions, or to add fractions with different denominators.**
- **Place any group of fractions into size order.**
- **Multiply pairs of fractions together.**
- **Divide fractions by whole numbers,
for example $1/3 \div 2 = 1/6$.**
- **Use division to calculate the decimal equivalent of a fraction.**
- **Know and use common equivalences between fractions, decimals and percentages,
such as $1/2 = 0.5 = 50\%$**

Steps Towards a Written Method

Mental calculations:

Number bonds ($7 + 8$, $70 + 80$)

Times tables (6×4 , 4×6 , $24 \div 6$, $24 \div 4$)

Multiplying and dividing by 10, 100, 1000

Complements to 1, 10, 100, 1000 ($100 + 900 = 1000$, $0.6 + 0.4$)



Informal methods:

Mental calculations supported by jottings or a number line

e.g. $550 + 371$

$500 + 300 = 800$

$50 + 70 + 1 = 121$

$800 + 121 = 921$



Standard written method

How Would You Calculate?

$$7 + 8 + 3$$

$$23 - 5$$

$$56 + 57$$

$$9 \times 7$$

$$90 \times 7$$

$$927 - 675$$

$$187 \div 8$$

Children are encouraged to choose the most efficient method for each calculation:

- Can I do it in my head?
- Do I need to use a written method?

The ability to calculate mentally supports all written methods of calculation.

What Foundations do Children Need?

Addition and subtraction:

Addition and subtraction facts to 1,000,000

(e.g. $75 + 25 = 100$

$1,000,000 - 250,000 = 750,000$)

Place value: partitioning (breaking up) numbers into millions, hundreds of thousands, tens of thousands, thousands, hundreds, tens and ones.

Multiplication and division:

Rapid recall of times tables and associated facts

(e.g. $7 \times 5 = 35$ so $7 \times 50 = 350$ and $350 \div 7 = 50$)

Multiply and divide by 10, 100 and 1000

Addition

Lower Key Stage 2

Pictures, images and objects

Use of number lines

Numbered lines provided by teacher or drawn by children

[Base 10/Dienes equipment](#)

Introduction of vertical recording (columns) with numbers regrouped into next column.

Expanded column method

Upper Key Stage 2

Compact column method

Progression in Written Methods for Addition

Expanded Column Method (Year 3 and 4).

$$\begin{array}{r} 400 \quad 60 \quad 6 \\ 300 \quad 50 \quad 8 \\ + 100 \quad 10 \quad \\ \hline 800 \quad 20 \quad 4 \end{array}$$

Compact Column Method (Year 5 and 6)

$$\begin{array}{r} 347 \\ 286 \\ + 495 \\ 21 \\ \hline 1128 \end{array}$$

Subtraction

Lower Key Stage 2

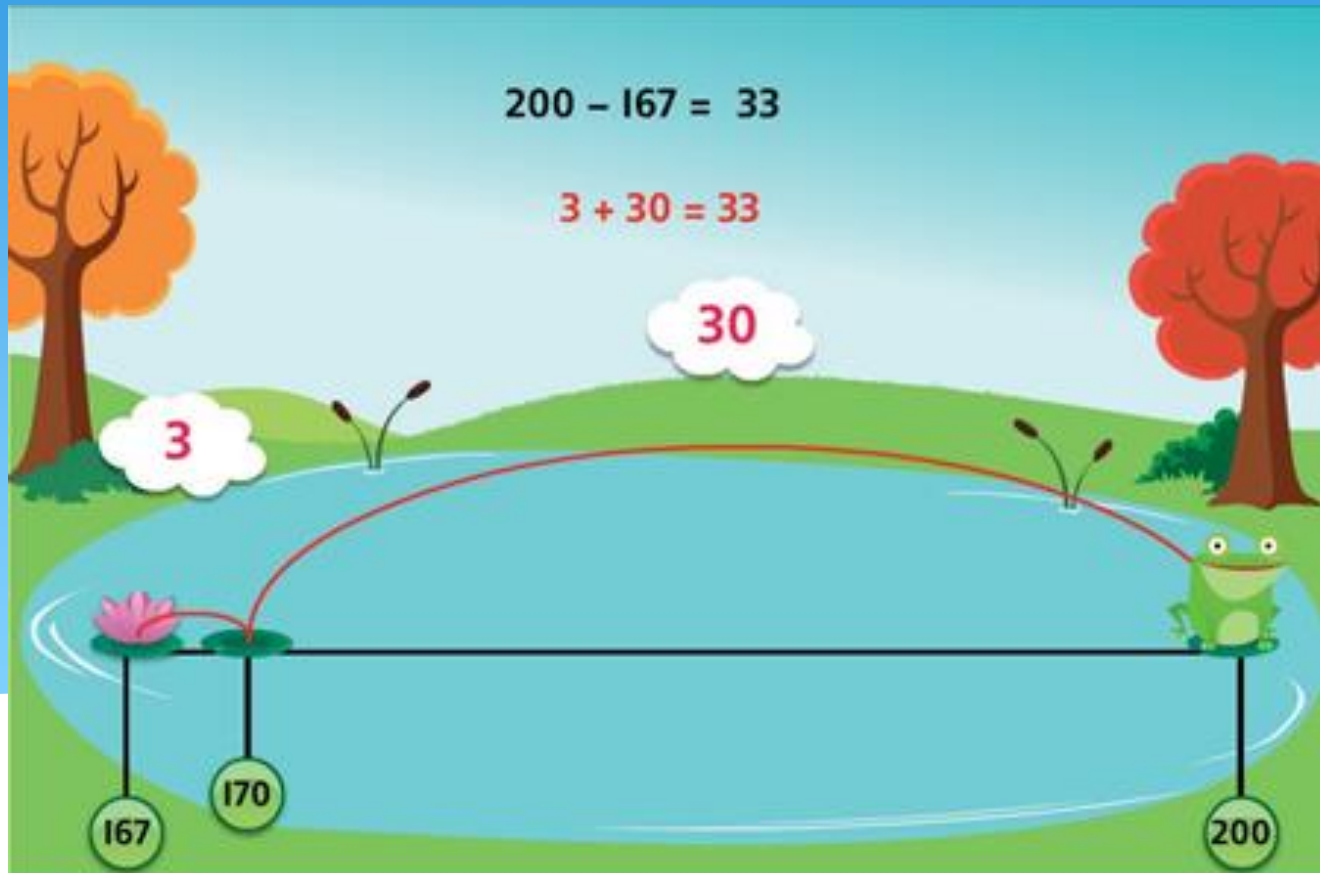
- Pictures, images and objects
- Use of number lines
- Numbered lines provided by teacher or drawn by children
- Empty number lines
- [Base 10/Dienes equipment](#)
- Expanded column method

Upper Key Stage 2

- Compact column method

Progression in Written Methods for Subtraction

Counting on a number line.



Progression in Written Methods for Subtraction

Expanded Column Method

$$\begin{array}{r} 600 \quad 110 \quad 16 \\ \cancel{700} \quad \cancel{20} \quad \cancel{6} \\ - 300 \quad 50 \quad 8 \\ \hline 300 \quad 60 \quad 8 \end{array}$$

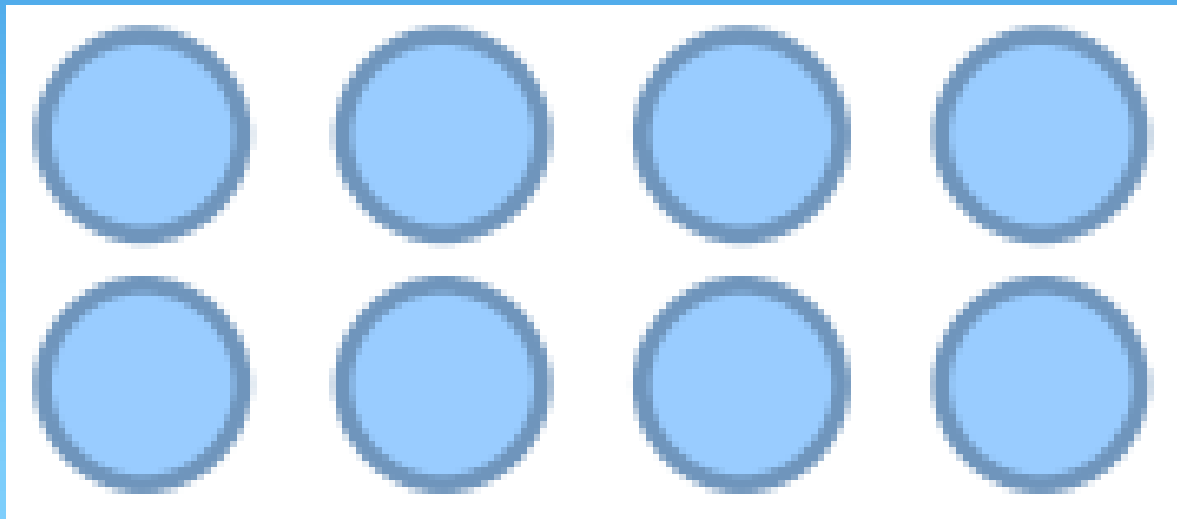
Compact Column Method

$$\begin{array}{r} 6 \quad 11 \quad 16 \\ \cancel{7} \quad \cancel{2} \quad \cancel{6} \\ - 3 \quad 5 \quad 8 \\ \hline 3 \quad 6 \quad 8 \end{array}$$

Multiplication

Arrays

E.g. $4 \times 2 = 8$ shown as



Progression in Standard Written Methods for Multiplication

Partitioning to develop grid method multiplication.

x	20	3
4	80	12

 = 92

Progression in Standard Written Methods for Multiplication

Vertical (Ladder) Method.

$$\begin{array}{r} \textcolor{blue}{2}\textcolor{green}{5}\textcolor{red}{3} \\ \times \quad 6 \\ \hline 18 \longleftarrow 6 \times \textcolor{red}{3} \\ 300 \longleftarrow 6 \times \textcolor{green}{50} \\ 1200 \longleftarrow 6 \times \textcolor{blue}{200} \\ \hline 1518 \\ \hline \end{array}$$

Progression in Standard Written Methods for Multiplication

Short Multiplication

$$\begin{array}{r} 435 \\ \times \quad 8 \\ \hline 24 \\ \hline 3480 \end{array}$$

Progression in Standard Written Methods for Multiplication

Long Multiplication

$$\begin{array}{r} 456 \\ \times 38 \\ \hline 3648 \\ 13680 \\ \hline 17328 \end{array}$$

Progression in Standard Written Methods for Division

- * Use multiples of a 1 digit number to solve division problems**

- * For example:**

$$41 \div 4$$

$$10 \times 4 = 40$$

$$41 - 40 = \text{remainder } 1$$

$$41 \div 4 = 10 \text{ r } 1$$

Progression in Standard Written Methods for Division

The 'chunking' method

$$86 \div 3 = \square$$

$$\square \times 3 = 86$$

$$20 \times 3 = 60$$

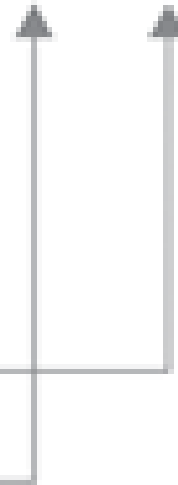
26

$$8 \times 3 = 24$$

2

28

$$86 \div 3 = 28 \text{ r}2$$



Progression in Standard Written Methods for Division

Short Division

$$\begin{array}{r} 13 \\ 7 \overline{) 921} \end{array}$$

Key Stage 2 Test Papers

Paper 1: Arithmetic

30 minutes

Paper 2: Reasoning

40 minutes

Paper 3: Reasoning

40 minutes

Key Stage 2 Test Papers

Arithmetic

[illegible]

Arithmetic

14

$$50,000 - 500 =$$

☐

1 mark

Arithmetic

23	$\begin{array}{r} 54 \\ \times 23 \\ \hline \end{array}$	
	Show your method	

Arithmetic

25	1 3 3 0 1 6									
	Show your method									

2 marks

Reasoning

2

A pack of paper has 150 sheets.

4 children each take 7 sheets.

How many sheets of paper are left in the packet?

Show
your
method

A large grid for showing the method, with a small empty box in the bottom right corner.

Reasoning

8

Maria bakes cakes and sells them in bags.



She uses this formula to work out how much to charge for one bag of cakes.

$$\text{Cost} = \text{number of cakes} \times 20\text{p} + 15\text{p for the bag}$$

How much will a bag of 12 cakes cost?

£

Reasoning

10

Write the two missing digits to make this **long multiplication** correct.

$$\begin{array}{r} 4 \square \\ \times \square 6 \\ \hline 2 4 6 \\ 8 2 0 \\ \hline 1 0 6 6 \end{array}$$



When it comes to times tables, speed AND accuracy are important - bursts of daily practise are more effective than spending hours once a week. And this is where you come in. For your child to be fully motivated and for them to get the best out of the practice, they need your help.

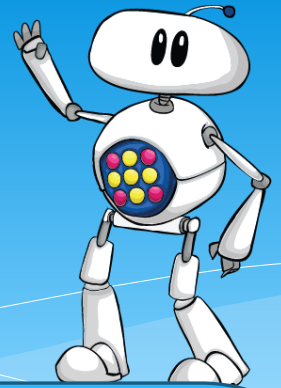
Without your praise and your reminders, without you sitting down next to them or checking their work, practising times tables will not feel important to your child and the more facts your child remembers, the easier it is for them to do harder calculations.

Please encourage your child to play the game at home regularly over the next few weeks to develop a regular habit that will assist their mathematics, just as daily reading helps propel their reading and writing.

Times Tables Rock Stars can be easily accessed with internet browsers or alternatively with phones and tablets using the Times Table Rock Star app. For internet browsers, visit <https://ttrockstars.com/> for apps, visit the App/Play Store.



MyMaths.co.uk
Bringing maths alive



MyMaths is an interactive online teaching and homework subscription website for schools that builds pupil engagement and consolidates maths knowledge.

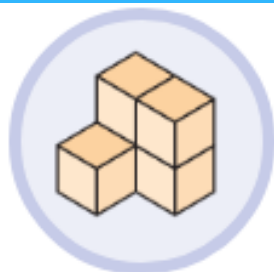
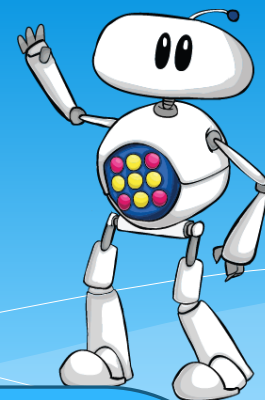
MyMaths can currently be used on PCs and laptops.
It is also available to be used on iPads and other tablet devices through the free Puffin Academy app on iTunes and Android.

Interesting Fact:

MyMaths is currently used in over 80% of secondary schools in the UK.

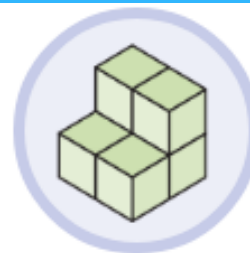


MyMaths.co.uk
Bringing maths alive



Fully interactive

MyMaths is a fully interactive, online mathematics learning solution for children of all ages and abilities. It helps your child to develop their understanding of maths through a variety of engaging activities, games and assessments.

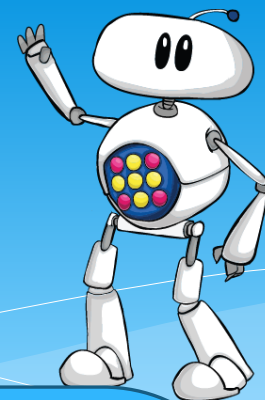


Login at home

Provided your child's school subscribes to MyMaths, your child will be able to access their homework set by their teacher and get instant results by logging in to the online student portal at home. Your child's school will provide their pupils with log-in details.



MyMaths.co.uk
Bringing maths alive



Your child should have received their login details already.

If they have misplaced their login details letter,
please get them to ask their class teacher for
another copy 😊

KS2 Maths SATS ORGANISER

KS2 Maths SATS ORGANISER 2019

Dash Board



ARITHMETIC BOOSTERS

2019 national curriculum tests

Key stage 2

Mathematics

Papers 1, 2 and 3: Arithmetic and Reasoning

4. Record scores

4. Record test answers

4. Record marks for questions

Test name	
Score	
Test name	
Score	
Test name	
Score	

Start

PAST PAPERS

REASONING BOOSTERS



YEAR 5



ARITHMETIC NINJA!



ARITHMETIC REVISION PACK



MIXED REVISION MINI-TESTS

WHITE ROSE VIDEO PLAYLISTS



This fantastic PDF document will be put onto the school website over the half term period.

During the first week back, your children will receive a letter providing them with more information about the PDF.

Question you can't do? Hit the Youtube button

14 Here are five number cards.

2010A KS2 Q14

$\frac{1}{2}$ $1\frac{1}{2}$ 2 $2\frac{1}{2}$ $3\frac{1}{2}$

Use **three** of the number cards to make this calculation correct.

 (+) $\times$ = 10



**Thank you for attending the
workshop.**

Questions?