



Maths: Parent Workshop



Before workshop Date: February 2020

Maths: Parent Questionnaire Rating: 1: low 5: High

Child(ren)'s year group

Do you enjoy Maths?

Rating	1	2	3	4	5
Comments					

How confident are you in your subject knowledge of Maths?

Rating	1	2	3	4	5
Comments					

Overall, how confident are you in supporting your child(ren) with Maths?

Rating	1	2	3	4	5
Comments					

How confident are you in knowing which methods to use/support your child(ren) with?

Rating	1	2	3	4	5
Comments					

How confident is/are your child(ren) with completing their maths homework?

Rating	1	2	3	4	5
Comments					

Any other comments:

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Welcome!

Please complete the questionnaire on your tables and keep it safe as you'll be needing it again later.

Wednesday 26th February 2020



Maths: Parent Workshop



What does your personal Maths journey look like?



What were your successes and failures?

W

?



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Workshop aims:

To increase your confidence with 'how we do Maths at PJS' so you are better prepared with supporting at home!





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What we are required to do:

The **national curriculum** for mathematics aims to ensure that all pupils:

1. become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
2. **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.
3. can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

What this means for us humans:

1. Children are able to recall and apply what they know to a variety of problems fairly quickly i.e 'Facts at their fingertips'.
2. Children are thinking about something in a logical, sensible way.
3. Children are able to explore and find solutions to difficult or complex issues.



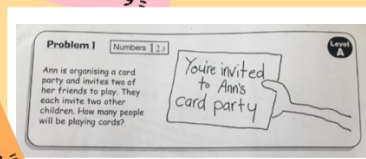
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A typical PJS lesson structure:

- '5 a day' at the start of Math lessons - supports children with the recall of 'facts at their fingertips'.
- Enquiry task at the start of a new skill - Children are thinking about something in a logical, sensible way and are able to explore and find solutions to difficult or complex issues linked to that skill.
- Arithmetic style questions if children need to practise these fundamental skills
- Reasoning & Problem solving - children then have greater confidence in thinking about something in a logical, sensible way and are able to explore and find solutions to difficult or complex issues and are able to explain thinking precisely.
- Teacher active modelling during each stage of lesson or Teacher maths book is available for children to use for support.

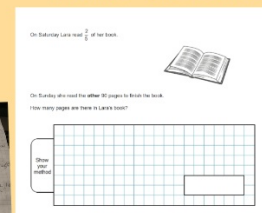
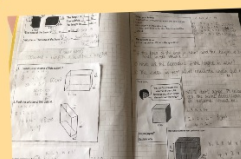
1) $5.8 \div 1$
2) $50 \times 30 =$
3) $1500 \div 5 =$
4) $35 \times 20 =$
5) $999 \div 9 =$



1) $4/8 \times 1/2 =$
2) $1/10 \times 6/12 =$
3) $1/3 \times 1/7 =$
4) $1/5 \times 5/8 =$
5) $8/9 \times 4/6 =$

I know that..... because...

I notice because....





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Diving deeper into the learning process:



Here's How We Do It

What do we already know?



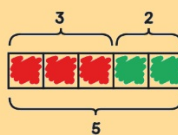
Concrete



Pictorial



Abstract



$$3 + 2 = 5$$

other questions

Calculation Policy: Multiplication							
Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7	Stage 8
Basic multiplication facts (times tables) and number lines.	Multiplication using arrays and area models.	Multiplication using the grid method.	Multiplication using the column method.	Multiplication using the long multiplication method.	Multiplication using the short multiplication method.	Multiplication using the lattice method.	Multiplication using the chunking method.

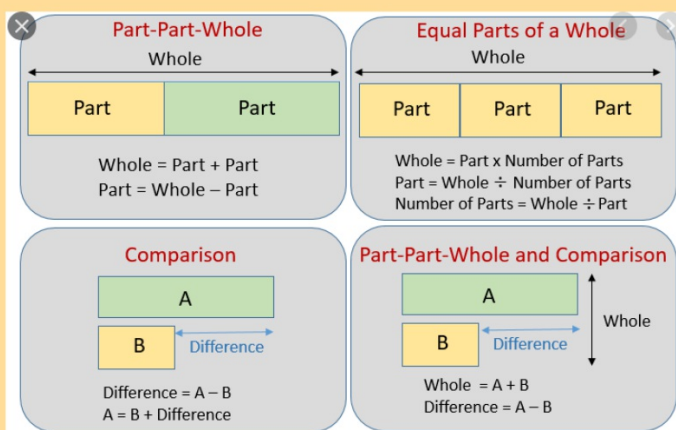


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Let's explore Concrete and Pictorial (C.P)



The bar model...



- Bar models are pictorial representations of problems or concepts that can be used for any of the operations: addition, subtraction, multiplication and division.
- In word problems, bar models hold the huge benefit of helping children decide which operations to use or visualise problems.
- It is not a method to solve a problem!
- It helps the learner to visualise the problem.
- They can then decide the best method to solve it!

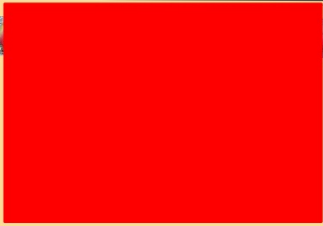
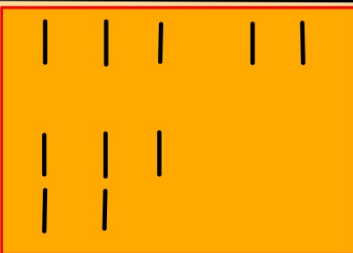
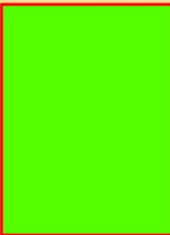
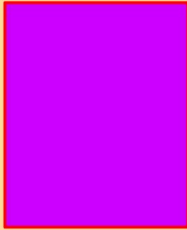


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Let's explore Concrete and Pictorial (C.P)



The Problem: Aliya has 4 oranges. Alfie has 3 oranges.
How many oranges are there altogether?

<i>say it</i>	<i>Make it (C)</i>	<i>Draw it (P)</i>	<i>Write it (A)</i>	<i>Solve it</i>
				

I know

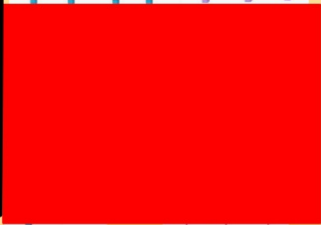
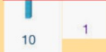
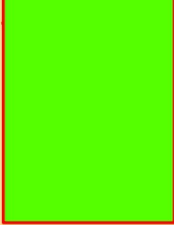
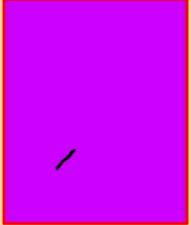


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Let's explore Concrete and Pictorial (C.P)



3 boys played a computer game. They scored 45 points, 36 points and 11 points. What was the total points they scored?

<i>say it</i>	<i>Make it (C)</i>	<i>Draw it (P)</i>	<i>Write it (A)</i>	<i>Solve it</i>
	 			

I know the total points scored were.... because....



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Let's explore Concrete and Pictorial (C.P)



Jinnie is 134cm tall. Her sister is 107cm tall. How much taller is Jinnie than her sister?

Gingerbread men come in packets of 6. Paul buys 4 packets. How many gingerbread men does he have?

Lucy has 56 tulips. She wants to share them equally into 8 vases. How many tulips should be in each vase?

<i>say it</i>	<i>Make it (C)</i>	<i>Draw it (P)</i>	<i>Write it (A)</i>	<i>Solve it</i>
				

What is $\frac{3}{5}$ of 40?

**Oliver took a 450g cake out of its container.
He ate of the cake before returning the rest to the container.
How much did he eat?**

I know because....



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Let's explore Abstract (A)



- The Concrete and Pictorial stage will help represent the problem and decide the operations to use in order for us to then decide the best method to solve it!
- Children often get 'stuck' at this stage! - This is very much where our 'fluency' is needed.

'What method should I use?'

'Am I using an efficient method?'

'Am I calculating accurately?'

Here's How We Do It



WHAT DO YOU ALREADY KNOW?



The method I will use is....

- mental methods - known facts/partitioning
- formal written for add/subtract/multiply/divide

- 1) Concrete and Pictorial have shown us what it looks like.**
- 2) I know I need to add/subtract/multiply/divide**



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Let's explore Abstract (A) Methods



Here's How We Do It

DIVISION $\div$

Short division (bus stop)

$$186 \div 6 =$$

	0	3	1	
6		1	8	6

no groups of 6 can be made $3 \times 6 = 18$ $1 \times 6 = 6$

Y6 ONLY - Long division (AHH!)

$$\begin{array}{r} 0318r5 \\ 20 \overline{) 6365} \\ \underline{60} \\ 36 \\ \underline{20} \\ 165 \\ \underline{160} \\ 5 \end{array}$$

Vocabulary examples

Share
divided by
divide into
groups of
share equally
divisor

1. Divide
2. Multiply
3. Subtract



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Let's practise Abstract (A) Methods



DIVISION $\div$

Short division (bus stop)

$$4 \overline{)365}$$

Y6 ONLY -Long division (AHH!)

$$37 \overline{)888}$$

1. Divide
2. Multiply
3. Subtract



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Let's practise Abstract (A) Methods



DIVISION $\div$

Short division (bus stop)

$$581 \div 7 =$$

A farmer is packing eggs.

Each box holds **six** eggs.



The farmer has 980 eggs to pack.

How many boxes can the farmer **fill** using 980 eggs?

1 mark

Y6 ONLY -Long division (AHH!)

$$83 \overline{)8051}$$

1. Divide
2. Multiply
3. Subtract

What is 444 minutes in hours and minutes?

1 mark



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Let's explore Abstract (A) Methods

Here's How We Do It

Multiplication ✕

'Grid Method' (partitioning)

$$123 \times 5$$

x	100	20	3
5	500	100	15

$$\begin{array}{r} 500 \\ + 100 \\ + 15 \\ \hline 615 \end{array}$$

Short Multiplication

24 × 6 becomes

$$\begin{array}{r} 24 \\ \times 6 \\ \hline 144 \\ 2 \end{array}$$

Long Multiplication

24 × 16 becomes

$$\begin{array}{r} 24 \\ \times 16 \\ \hline 240 \\ 144 \\ \hline 384 \end{array}$$



Vocabulary examples

multiply
times
groups of
lots of
product
repeated addition



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Let's practise Abstract (A) Methods

Here's How We Do It

Multiplication ✕



Vocabulary examples

multiply
times
groups of
lots of
product
repeated addition

'Grid Method' (partitioning)

$$9 \times 41 =$$

Short Multiplication

$$8 \times 33 =$$

Long Multiplication

$$\begin{array}{r} 836 \\ \times 27 \\ \hline \end{array}$$



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Let's practise Abstract (A) Methods

Multiplication ✕



Vocabulary examples

multiply
times

groups of
lots of
product

repeated addition

'Grid Method' (partitioning)

or

Short Multiplication

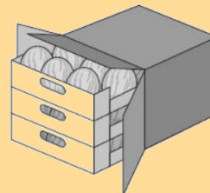
$$167 \times 4 =$$

$$879 \times 3 =$$

A box contains trays of melons.

There are 15 melons in a tray.

There are 3 trays in a box.



Long Multiplication

$$\begin{array}{r} 4781 \\ \times 23 \\ \hline \end{array}$$

$$\begin{array}{r} 418 \\ \times 46 \\ \hline \end{array}$$

A supermarket sells 40 boxes of melons.

How many melons does the supermarket sell?



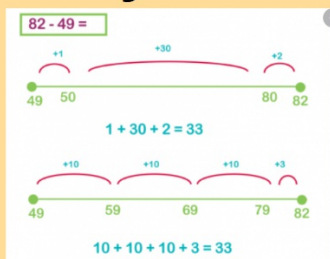
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Let's explore Abstract (A) Methods

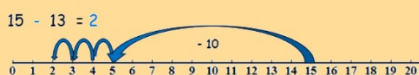
Here's How We Do It

Numberline

counting on



counting back



Subtraction —

Expanded written method

$$\begin{array}{r} 264 = 200 + 60 + 4 \\ -128 = 100 + 20 + 8 \end{array}$$

$$\begin{array}{r} 92 \\ -46 \\ \hline 46 \end{array}$$
$$\begin{array}{r} 80 \quad 12 \\ \cancel{90} + \cancel{2} \\ -40 + 6 \\ \hline 40 + 6 \end{array}$$



Vocabulary examples

subtract
take away
minus
difference
decrease

Formal Written method

$$200 - 167 =$$

$$\begin{array}{r} 200 \\ -167 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \quad 7 \quad 12 \\ 5 \quad 6 \quad - \\ \hline 1 \quad 6 \end{array}$$



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Let's practise Abstract (A) Methods



Subtraction —

Vocabulary examples

subtract
take away
minus
difference
decrease

Numberline

Expanded written method

Formal Written method

$= 87 - 65$

$602 -$

$= 594$

$7,064 - 502 =$

$= 5,776 - 855$

The **original** price of this car is £8,999

Sale
£1,100 off



What is the **sale** price of the car?

The children at Farmfield School are collecting money for charity.

Their target is to collect £360

So far they have collected £57.73

How much **more** money do they need to reach their target?



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Let's explore Abstract (A) Methods



Here's How We Do It

Addition

+

Vocabulary examples

add
more
groups of
plus
sum
altogether

Expanded written method

$$\begin{array}{r} 37 + 52 = 89 \\ 30 + 7 + \\ 50 + 2 + \\ \hline 80 + 9 = 89 \end{array}$$

$$\begin{array}{r} 368 = 300 + 60 + 8 \\ + 455 = 400 + 50 + 5 \\ \hline 700 + 110 + 13 = 823 \end{array}$$

Formal Written method

$$\begin{array}{r} 456 \\ + 123 \\ \hline 579 \end{array}$$

789 + 642 becomes

$$\begin{array}{r} 789 \\ + 642 \\ \hline 1431 \\ \hline 11 \end{array}$$



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Let's practise Abstract (A) Methods



Here's How We Do It

Addition



Vocabulary examples

add
more
groups of
plus
sum
altogether

Expanded written method

Formal Written method

$$39 + 673 =$$

= $8,275 + 82$

$$707 + 1,818 =$$

= $936 + 285$

These are some prices in a fish and chip shop.

Fish £2.30	Peas 35p
Sausage £1.80	Curry sauce 40p
Chips (small bag) 60p	Bread roll 30p
Chips (large bag) 90p	Pickled onion 28p

Alfie buys one fish, a large bag of chips and a pickled onion.

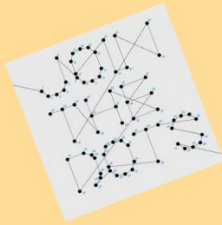
How much does he pay?

The table shows the cost of a new football kit.

Item	Cost
Shirt	£8.75
Shorts (1 pair)	£5.95
Socks (1 pair)	£4.15



Altogether, how much does the complete football kit cost?



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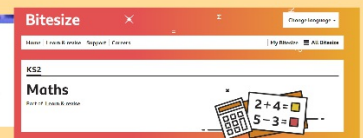
[THE] FINAL THOUGHT



- * We aim to develop children as 'thinkers' and 'enquirers' - don't just give them the answers!
- * What do we already know? - draw upon known facts!
- * Concrete, Pictorial, Abstract approach (CPA) - do it, draw it, solve it!
- * Your beliefs show through your actions - positive, positive, positive.

We are here to support.....(and so is the internet)

Mathematics
programmes of study:
key stages 1 and 2
National curriculum in England





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Do you enjoy Maths?

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Rating	1	2	3	4	5
Comments					

How confident is/are your child(ren) with completing their maths homework?

Rating	1	2	3	4	5
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Any other comments:

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THANK YOU!

Please complete the 'after' questionnaire and hand it to us as you leave.

Wednesday 26th February 2020