

Maths Workshop: Years 3, 4 and 5

Aims:

- To provide you with an understanding of how your child learns maths
- To understand why fluency of basic number facts is so important
- To look at some of the strategies used to support your child in school
- To look at ways you can support your child at home.

Partnerships...



National Centre
for Excellence in the
Teaching of Mathematics



Education
Endowment
Foundation



*Maths*HUBS

At our school...

- 4 NCETM Professional Development Leads**
- 2 Mastery Specialists**
- 3 Maths Specialist Leaders of Education**

Care, Aspire, Achieve

Children Aspiring to be the best they can be
and all children

Achieving to their full potential

2016/17

Maths	Met Expected Standard	106.4	84.7	75
	Greater Depth		32.2	23
Maths progress			3.7	Significantly above average

2017/18

Maths	Met Expected Standard	108	93.2	76
	Greater Depth		37.3	24
Maths progress			4.6	Significantly above average

2018/19

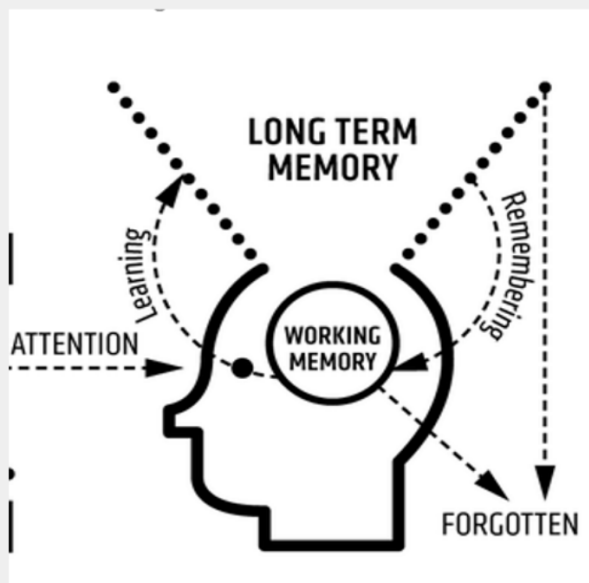
Maths	Met Expected Standard	106	89	79 (105 SS)
	Greater Depth		30	27
Maths progress			2.4	Above average

**Fluency is the key barrier
to children achieving!**



Fluency...why is it important?

To help develop children's fluency in maths, there are key facts that they need to be able to recall fluently (quickly and accurately).



Our working memory is a temporary holding space where we manipulate and process information. Limited space

Long term memory is the ability to both store and recall information for later use. For example, the ease we have in spelling our first name

Key concepts from Years 3 to 5 we will be looking at today...

- Number Bonds
- Basic Number Facts
- Addition and Subtraction
- Multiplication and Division

Strategies, models and representations we will use:

Partitioning

Number Lines

Column method



Number Bonds and Basic Number Facts



Number Bonds

(Pairs of numbers that make up a given number)

$$1 + 7 = 8$$

$$2 + 6 = 8$$

$$3 + 5 = 8$$

$$4 + 4 = 8$$

$$3 + 5 = 8$$

$$2 + 6 = 8$$

$$1 + 7 = 8$$

Basic Number Facts

(Basic addition, subtraction, multiplication and division calculations that children should learn to recall instantly with no working out)

$$9 + 6 = 15$$

$$15 - 6 = 9$$

$$8 + 8 = 16$$

$$12 + 2 = 14$$

$$14 - 2 = 12$$

$$8 + 4 = 12$$

$$12 + 4 = 8$$

Addition

Addition is **commutative** - changing the order of the numbers, does not change the result.

$$8 + 6 = 14$$

$$6 + 8 = 14$$

$$345 + 526 = 871$$

$$526 + 345 = 871$$

It is the **inverse** (opposite) of subtraction and the two work closely together.

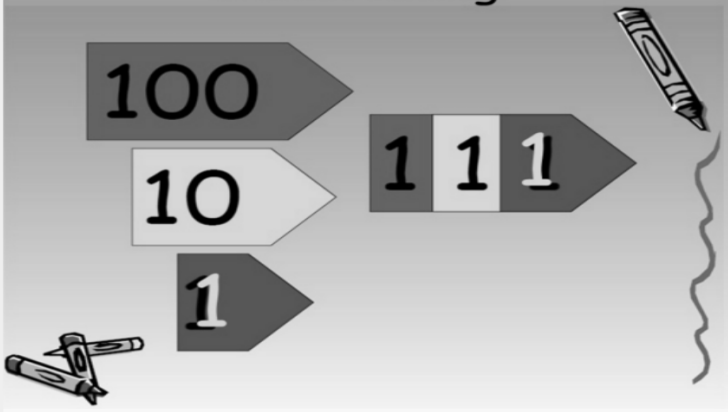
$$8 + 6 = 14$$

$$14 - 6 = 8$$

$$345 + 526 = 871$$

$$871 - 526 = 345$$

Partitioning



Partitioning is when we
break a number into
smaller parts

H T O

3 5 7

$$300 + 50 + 7 =$$

Partitioning for addition in Year 3

$$55 + 78 = 133$$

$$\text{Add the units: } 8 + 5 = 13$$

$$\text{Add the tens: } 70 + 50 = 120$$

$$\text{Add the results: } 120 + 13 = 133$$

Or we could partition the second number only and use a number line...

$$78 + 50 + 5 =$$

Years 3, 4 and 5...

To be able to progress to the column method, children require a solid understanding of place value, partitioning and number facts.

$$\begin{array}{r} 576 \\ + 369 \\ \hline 945 \\ \hline \end{array}$$
$$\begin{array}{r} 7268 \\ + 5179 \\ \hline 12447 \\ \hline \end{array}$$

$$429 + 247 = \begin{array}{r} 429 \\ + 247 \\ \hline \end{array}$$

$$2,375 + 263 = \begin{array}{r} 2,375 \\ + 263 \\ \hline \end{array}$$

Subtraction

Subtraction is not commutative - we can **not** change the order of the numbers

12 - 8 would not give us the same
result as 8 - 12

However, as subtraction is the inverse (opposite) of addition, the same processes can be used...

- Partitioning
- Knowing addition facts
- Column method

Partitioning for subtraction...

$$84 - 27 =$$

We now only partition the second number...

$$84 - 20 - 7 =$$

Column method...

$$\begin{array}{r} 676 \\ - 429 \\ \hline \\ \hline \end{array}$$

Multiplication and Division

- Year 3 - Recall multiplication and division facts for 2, 5, 10, 3, 4 and 8 times tables
- Year 4 - Recall all multiplication and division facts up to 12×12

Deriving facts

I know $5 \times 7 = 35$

so... $6 \times 7 = 42$

Knowing facts

$6 \times 7 = 42$

*Full sentences

Division links with multiplication the same as subtraction links with addition.

$$3 \times 5 = 15$$

$$15 \text{ divided by } 5 = 3$$

Activity: If I know $6 \times 4 = 24$, what else do I know?

Multiplication tables check - Year 4

(25 questions - 6 seconds per question)



Takes place in June 2020

Knowing multiplication and division facts
also helps with fractions...

$$6 \times 7 = 42$$

$$42 \div 7 = 6$$

$$\frac{1}{7} \text{ of } 42 = 6$$

$$8 \times 5 = 40$$

$$40 \div 5 = 8$$

$$\frac{1}{5} \text{ of } 40 = 8$$

$$9 \times 4 = 36$$

$$36 \div 4 = 9$$

$$\frac{1}{4} \text{ of } 36 = 9$$

$$11 \times 12 = 132$$

$$132 \div 12 = 11$$

$$\frac{1}{12} \text{ of } 132 = 11$$

Written methods for Division and Multiplication

$$42 \div 3$$

$$\begin{array}{r} 364 \\ \times 5 \\ \hline \end{array}$$

$$324 \div 4$$



Learn the facts
* recall and apply



Story Mode
Challenge Mode



Automatic training mode
Gigs
Battles
Soundcheck



Key messages...

Be positive about maths



Talk to your child about numbers and maths

Give lots of praise and encouragement

Help your child to recall basic facts fluently!

The secret to success is practising little and often!

