



Year 5 Maths Parent Café

Wednesday 21st March 2018

What does it mean to master something?

- I know how to do it
- It becomes automatic and I don't need to think about it- for example driving a car
- I'm really good at doing it – painting a room, or a picture
- I can show/teach someone else how to do it.

Mastery of Mathematics

- Achievable for all
- Deep and sustainable learning
- The ability to build on something that has already been sufficiently mastered
- The ability to reason about a concept and make connections
- Conceptual and procedural fluency

Teaching for Mastery

- High expectations for every child
- Fewer topics covered in greater depth
- Number sense and place value come first
- Problem solving is central
- Practice makes permanent
- Challenge is provided through an increased depth, rather than acceleration of content

Fluency, reasoning, problem solving

- Conceptual and procedural fluency
- Reasoning – prove it, justify it, explain it
- Problem solving – application of conceptual and procedural fluency in different contexts

What is $\frac{3}{5}$ of 20?

Show it

Draw it

Explain it

Prove it

You split 20 up into 5 equal parts. There's four in each part and 3 is 3 of the groups which is 12 cubes.

$\frac{1}{5}$ of 20 is 4
 $\frac{3}{5}$ of 20 = $3 \times 4 = 12$

Fluency – Reasoning – Problem Solving

Subtract whole numbers with more than 4-digits (column method)

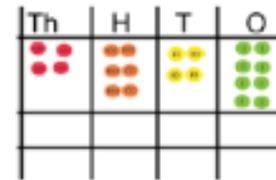
Holly is completes this subtraction incorrectly

$$\begin{array}{r}
 28701 \\
 - 7621 \\
 \hline
 21180 \\
 \hline
 \end{array}$$

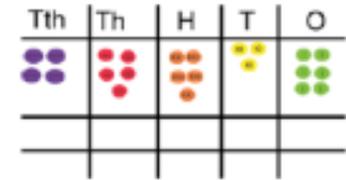
Explain the mistake to Holly and correct it for her.

Work out:

$$4,648 - 2,347$$



$$45,536 - 8,426$$



Gina makes a 5-digit number.
Mike makes a 4-digit number.

The difference between their numbers is 4,365

What could their numbers be?

Fluency – Reasoning – Problem Solving

Put < , > or = in each circle to make the statements correct.

$$4,458 \times 56 \quad \bigcirc \quad 4,523 \times 54$$

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Can you spot and correct the errors in the calculation below.

$$\begin{array}{r} 2534 \\ \times \quad 23 \\ \hline 7592 \\ 1 \quad 1 \\ 5068 \\ \hline 12660 \\ \hline 11 \end{array}$$

This represents the multiplication of a 4-figure number by 3.

$$\begin{array}{r} \star \star \star \star \\ \times \quad \quad \quad 3 \\ \hline \star \star \star \star \star \end{array}$$

The whole calculation uses each of the digits 0 – 9 once and once only.

The 4-figure number contains three consecutive numbers, which are not in order. The third digit is the sum of two of the consecutive numbers.

The first, third and fifth figures of the five-digit product are three consecutive numbers, again not in order. The second and fourth digits are also consecutive numbers.

Can you replace the stars in the calculation with figures?

Fluency – Reasoning – Problem Solving

Converting improper fractions and mixed numbers



$$14/3 = 4 \frac{2}{3}$$



Three children have converted $3\frac{2}{5}$ into an improper fraction.

Child A

$$3\frac{2}{5} = \frac{32}{5}$$

Child B

$$3\frac{2}{5} = \frac{17}{15}$$

Child C

$$3\frac{2}{5} = \frac{7}{5}$$

Find the value of $a + b + c$

$$\frac{15}{11} = 1\frac{a}{11}$$

$$\frac{29}{a} = b\frac{c}{a}$$

How can you support at home?

- Maths learning can happen anywhere. Maths is all around us and problem solving is at the heart of the mastery approach. Look for maths problems you can solve together, making connections between what your child has been learning at school and the world around them.
- Revisit areas of Maths previously covered – see parent overviews.
- Follow a recipe: work together to find out the quantities needed, ask your child to weigh the ingredients, discuss how you'd halve or double the recipe and discuss the ratio of ingredients.
- Talk about the weather forecast: is today's temperature higher or lower than yesterday's? What do the numbers mean?
- Going shopping: talk about the cost of items and how the cost changes if you buy two items instead of one. Let your child count out the coins when paying and discuss the change you get back. Use coins to explore addition, subtraction, multiplication and division.
- Planning an outing: discuss how long it takes to get to the park, and so work out what time you need to leave the house. Encourage your child to work out the best solution based on the time and distances. Discuss what shapes you see when you get there.

Think and talk like a mathematician

- Mathematics language often uses common words in a new way. For example, 'difference', 'right', 'product', 'table'.
- Always encourage your child to explain how they have gone about solving a problem, and work with them to test, prove, explain, reflect and spot patterns.
- Questioning and prompts can be powerful tools to boost your child's mathematical thinking: 'What do you think...?' 'Why ...?' 'What will happen if...?' 'What do you notice about...?' 'Can you see a pattern between...?' 'What if we try...?'
- Communicating and discussing maths problems (in a way that others can understand) demonstrates depth of understanding – another fundamental aspect of mastering mathematics.

