



Houghton Conquest
Lower School

Growing together

Welcome you to our

Maths Celebration Evening

Monday 8th October 2018

Outline of the evening

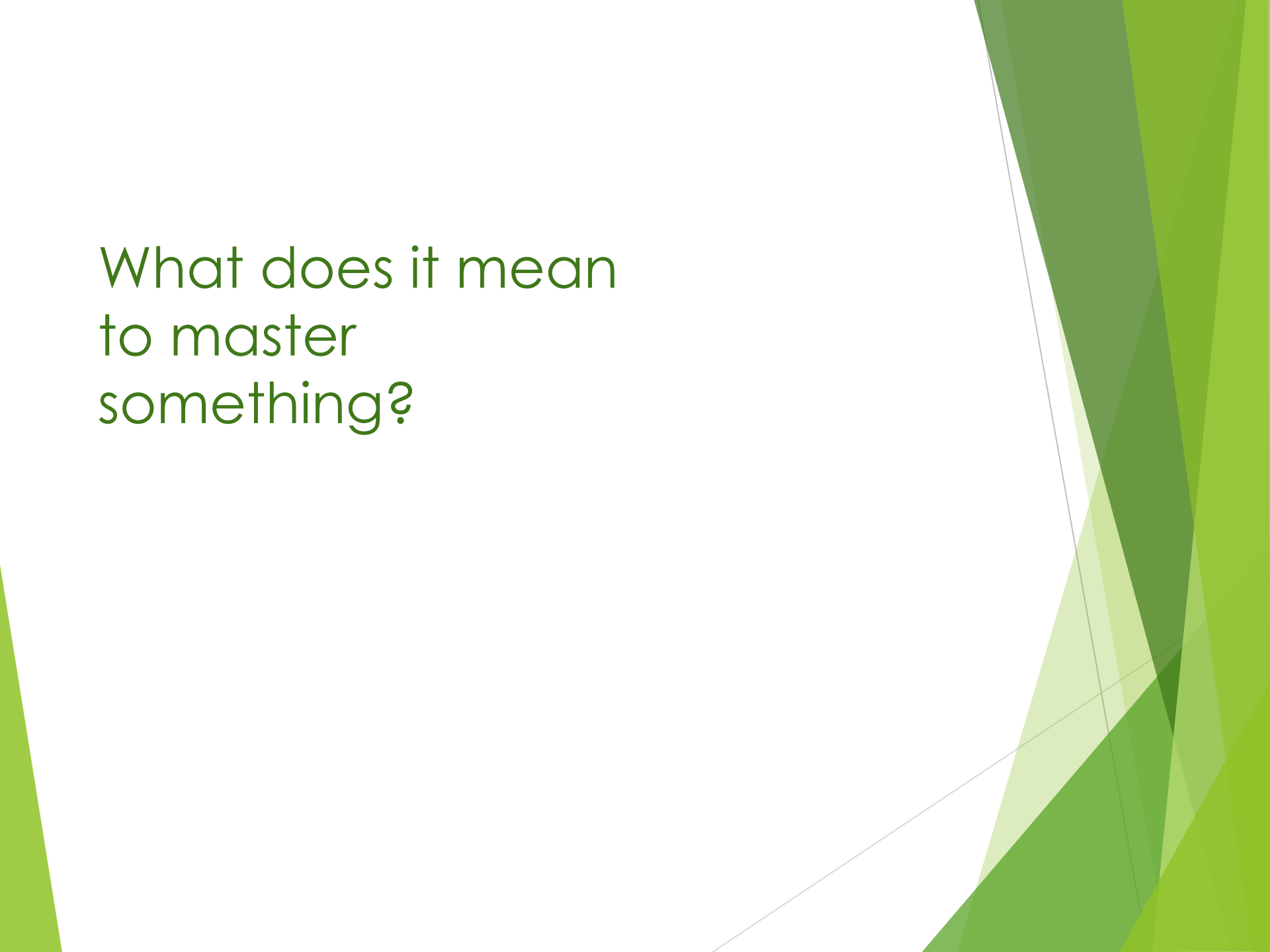
- ▶ What is Maths Mastery and how is it different?
 - ▶ A Presentation on our approach to Mathematics and why we are using this method of teaching
- ▶ An open look at Mathematics teaching across the school
 - ▶ Letting you see what this looks like across the varied age ranges and expectations throughout the school
- ▶ Maths Whizz
 - ▶ A Maths Whizz help desk and collect your parent login
- ▶ Maths Whizz Prizes
 - ▶ Bronze, Silver and Gold awards for pupils in each class who have demonstrated the most progressions.
 - ▶ A Class award for highest average progressions

What is Maths Mastery and how is it different?

- ▶ Questions you may have
 - What is teaching for mastery?
 - Why should we teach for mastery?
 - What will it look like at Houghton Conquest Lower School?
 - How you can help at home



What does it mean
to master
something?



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 someone else how to do it.

Mastery of Mathematics is more.....

- 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
- Fluency

The 2014 curriculum is a **mastery curriculum**

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

- become **fluent** in the fundamentals of mathematics
- **reason mathematically** using mathematical language
- can **solve problems** by applying their mathematics to a variety of problems

The expectation is that the majority of children will move through the programmes of study at broadly the same pace.

However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage.

Those who are not sufficiently fluent with earlier material should consolidate their understanding, through additional practice, before moving on.

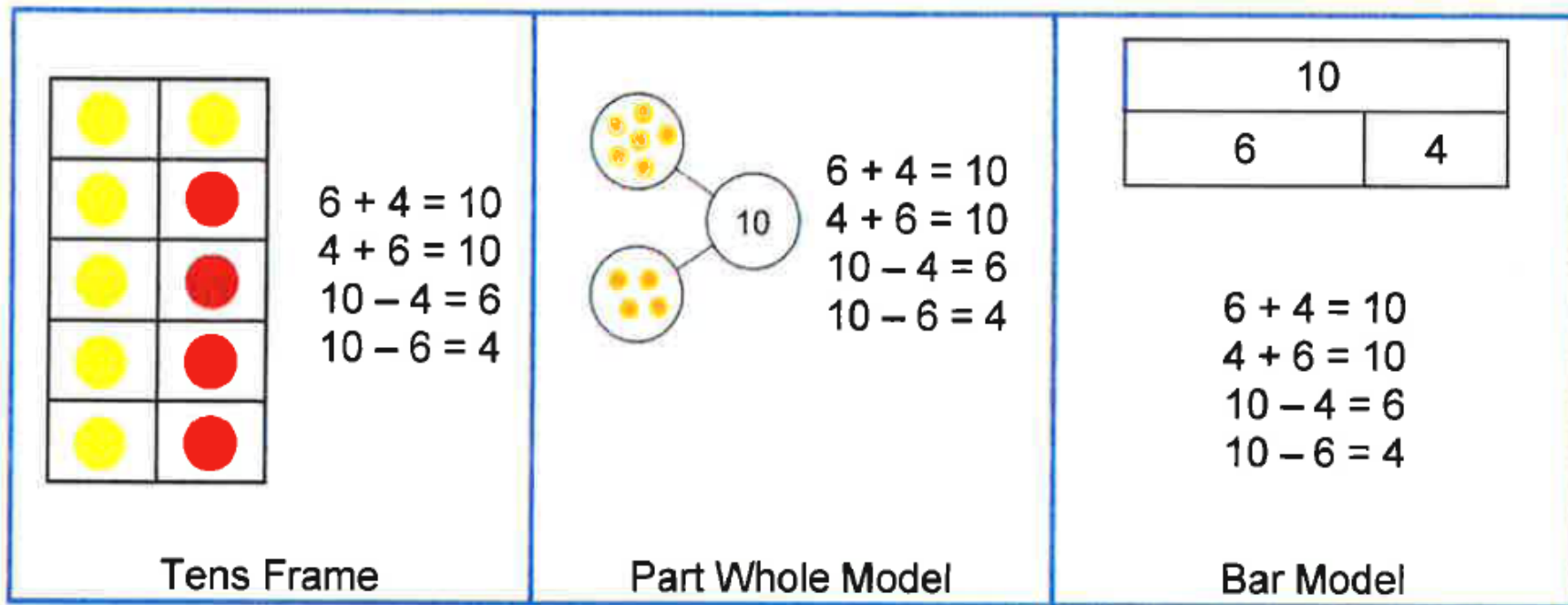
What will you notice at Houghton Conquest Lower School this year?

- A teaching for mastery approach being used across the school
- Variation in the type of questions your child is being asked and how they are presented
- Resources
- Deep questioning and reasoning
- An emphasis on knowing number facts and times tables (fluency)
- Teachers talking about their maths teaching, sharing ideas, working in study groups
- Children using correct mathematical language

What will a lesson look like?

- Start with some fluency
- Review previous learning
- New learning introduced through real life context
- Discussed by children. Different approaches analysed and problem is represented in different ways (CPA)
- Similar example for children to work through (will be varied in some way)
- Challenge – planning for confusion
- Independent work
- Same day (where possible!) intervention

Children are presented with a variety of models and images.



Expect children to use correct mathematical terminology and to express their reasoning in complete sentences.

What is fluency?

► **Efficiency** implies that the student does not get bogged down in too many steps or lose track of the logic of the strategy. An efficient strategy is one that the student can carry out easily, keeping track of sub problems and making use of intermediate results to solve the problem.

► **Accuracy** depends on several aspects of the problem-solving process, among them careful recording, knowledge of number facts and other important number relationships, and double-checking results.

► **Flexibility** requires the knowledge of more than one approach to solving a particular kind of problem, such as two-digit multiplication. Students need to be flexible in order to choose an appropriate strategy for the problem at hand, and also to use one method to solve a problem and another method to double-check the results.

► Fluency demands more of students than the memorization of a single procedure

Fluency involves:

- **Quick recall** of facts and procedures
- The **flexibility and fluidity** to move between different contexts and representations of mathematics.
- The ability to **recognise relationships/structures** and **make connections** in mathematics

▶ $18 + 14 = \square + 15$

▶ $32 - 27 = \square$

▶ $\square = 25 \times 9$

▶ $42 \div 3 = \square$



•Which of these do you rely most heavily on factual recall to solve?

•Which of them do you rely more heavily on relationships and structure to solve?

•Discuss the knowledge & strategies which make you fluent.

- ▶ Sally knows all her tables up to 12×12
- ▶ When asked what is 12×13 she looks blank.
- ▶ Does she have fluency and understanding?

 x  $= 12$

 x  $= 9$

$?$ $=$ 

End of year expectations for times table facts.

Year 1 – Counting in 2's, 5's and 10's

Year 2 – 2, 5 and 10 times tables

Year 3 – 3, 4, and 8 times tables

Year 4 – All times table facts up to 12×12

Help to understand Times tables and division facts

- Give children a number fact and ask what else they know.
 - E.g $3 \times 4 = 12$ so $30 \times 40 = 1200$, $120 = 30 \times 4$ etc.
- Quick fire questions – establish which ones they don't know
- Fizz buzz
- 'I say..., you say' using the inverse
- Look for patterns in multiples
- E.g. 11's use double digits
- Multiples of 9, up to 10×9 , both digits equal 9.

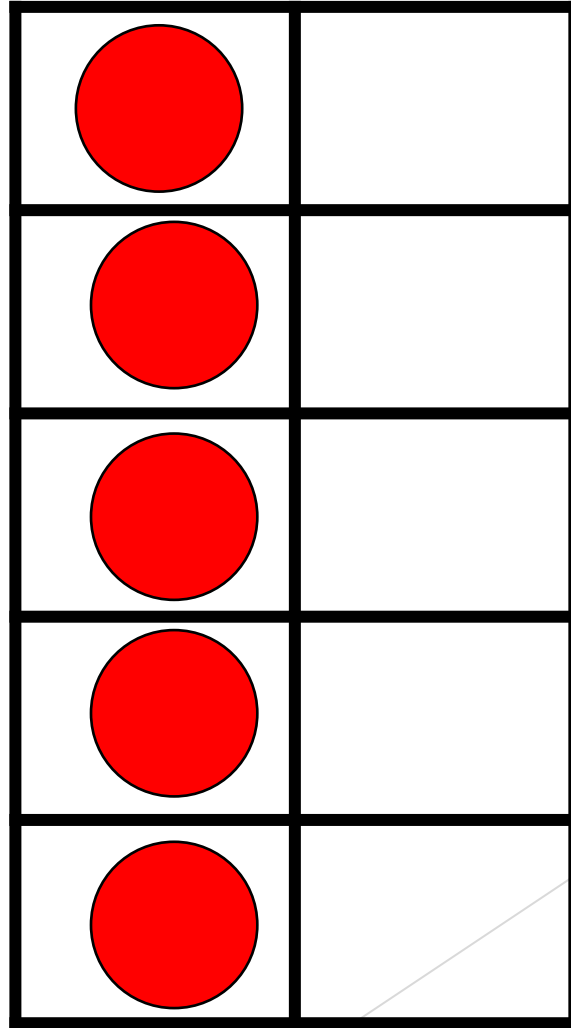
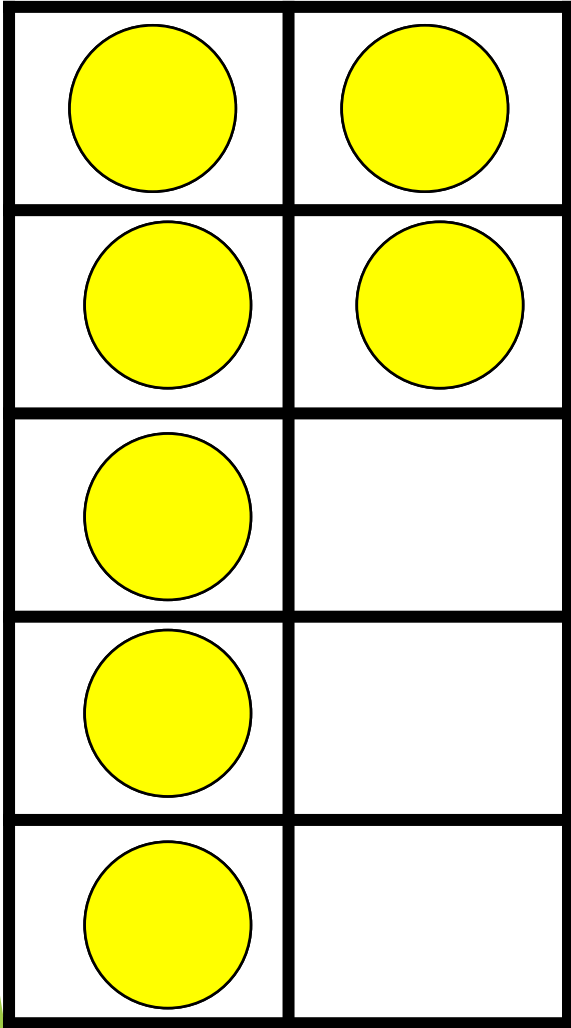
In a car park there are 7 cars. 5 more cars enter the car park. How many cars are there altogether?

Can you use the tens frame and counters to represent the problem?



Bridging 10

How can we use 10 to solve the addition problem?

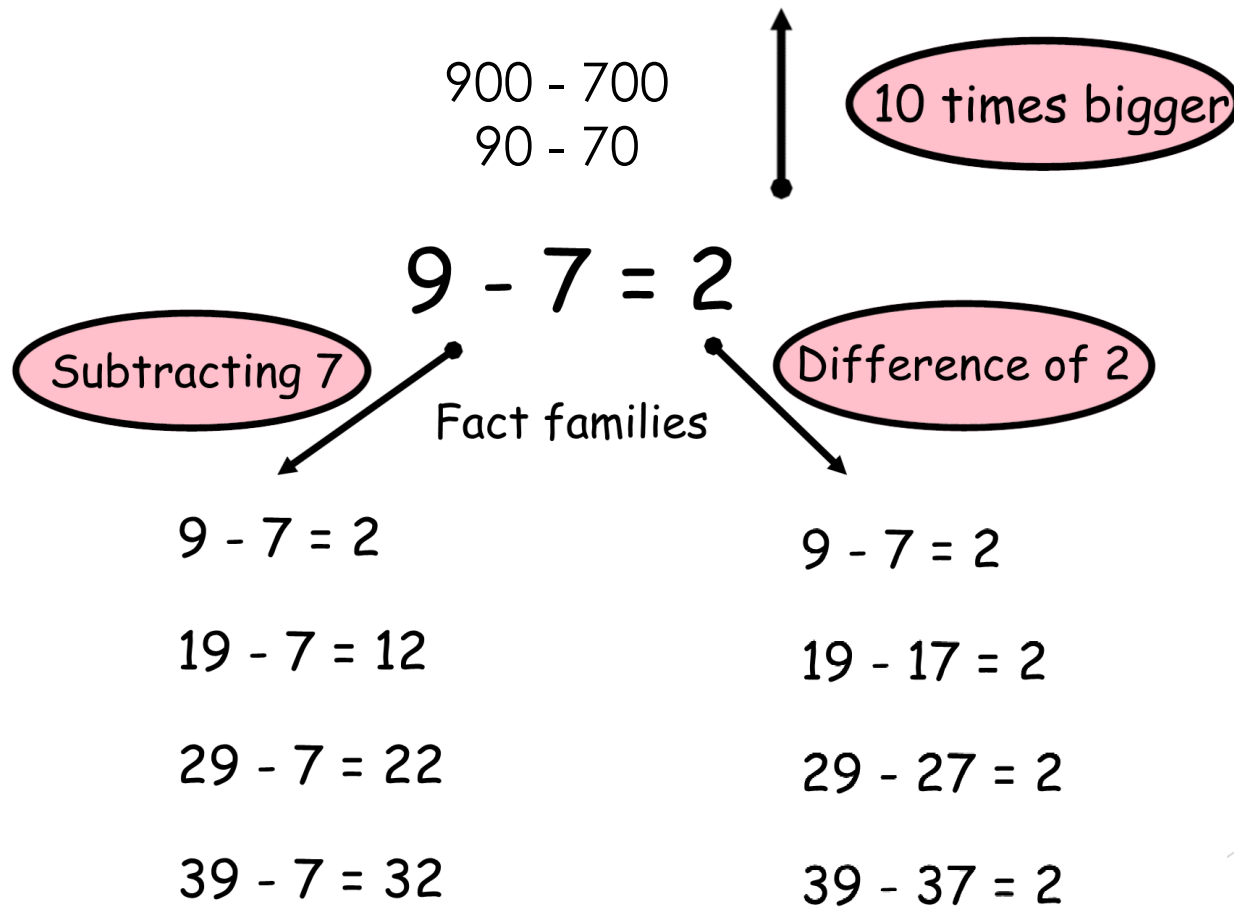


Why focus on fluency in addition and subtraction facts?

* A defined set of addition and subtraction facts build the basis of all additive calculation, just as times tables are the building blocks for all multiplicative calculation.

* If children are not fluent in these facts, then when they are solving more complex problems the working memory is taken up by calculating basic facts, and children have less working memory to focus on solving the actual problem.

Developing fluency with number facts



Help with adding and subtracting

- Give children a number fact and ask what else they know.
- E.g $3 + 4 = 7$ so $30 + 40 = 70$, $700 = 300 + 400$ etc.
- Quick fire questions – establish which ones they don't know
- 'I say..., you say' using the inverse

Some Reflections

- ▶ Outcomes are stronger where there is a combination of recall and strategies
- ▶ The route to memorisation is recognising relationships and making connections
- ▶ Need to move away as quickly as we can from counting strategies
- ▶ The ability to partition single digit numbers is crucial

Maths Whizz

The image features a white background with abstract, overlapping green geometric shapes on the right side. These shapes include triangles and polygons in various shades of green, ranging from light to dark. The shapes are layered, creating a sense of depth and movement. The text 'Maths Whizz' is positioned on the left side of the page, centered vertically relative to the green shapes.

Why are we using it?

- ▶ Maths Whizz provides your child with unique challenge structured to their individual maths learning profile
- ▶ Engaging and child-centred learning in an 'out of class' context
- ▶ Uses *Mastery* as a means for delivery
- ▶ Research shows that students who learn with Maths-Whizz increase their Maths Age by 18 months in their first year of use*. That's a six month acceleration in maths learning from just 45 minutes use per week