

## 'Learning by Heart'

Developing children's knowledge of mathematical facts so that they know them 'by heart' is a valuable tool to support calculation strategies, and also helps to build confidence. Regular practice is needed to secure knowledge and help children instantly recall facts.

We encourage children to think 'Can I do this in my head?' Having a range of number facts at their fingertips really empowers the children and enables them to approach tasks with confidence.

### Summer Term 1: Know the doubles and halves of all numbers to 100 and multiples of 100 to 10,000

Doubles and corresponding halves for all whole numbers from 1 – 100 → start with even numbers as easier to halve. When halving odd numbers there will always be  $\frac{1}{2}$  or 0.5 in the answer.

Doubles and halves of all multiples of 100 to 10,000 → remind children about identifying multiples of 100:

all multiples of 100 end in 00 such as all 'hundred' and all 'thousand' numbers e.g., 500, 900, 1100, 1500, 7400, 9800, etc

### Practical ideas to help your child

- Encourage children to make links:

Doubling → multiplying by 2

Halving → dividing by 2

- Partitioning is a useful aid to doubling and halving e.g.

doubling 39 is the same as double 30 + double 9

halving 78 is the same as half of 70 + half of 8

- Encourage children to make links with known facts to derive (work out) unknown facts e.g.

if double 7 is 14 → double 70 is 140 then double 700 is 1400

- Regular 5 / 10 minute practice, quick-fire questions. 'Speed challenge': how many doubles and halves can you get right in 3 minutes? (using kitchen timer). Progress to 'Beat your record': can you get 5 more right than yesterday?

- Deriving facts: If you know that double 6 is 12, what else do you know? E.g. half of 12 is 6, double 60 is 120, half of 120 is 60, double 600 is 1200, half of 1200 is 600, double 6000 is 12000, half of 12000 is 6000, etc

## Vocabulary

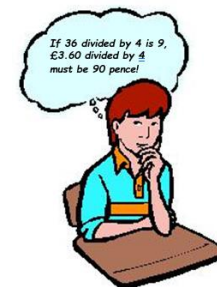
double	multiply by 2	times by 2	x2 halve	divide by 2	
÷ 2	partition	hundreds	tens	units	derive

### Summer Term 2: Revise all 'Rapid Recall' facts from Year 6.

- Consolidate all number bonds work including decimals 1-10
- Consolidate multiplication and division facts to  $12 \times 12$  and  $12 \times 120$
- Know the doubles and halves of all 2 digit numbers
- Know the doubles and halves of all whole numbers and multiples 10 to 100

A litre jug is filled with 0.25l of juice.  
How much more is needed to make a litre?

0.75 of a litre!  
How did you work that out?  
Because a quarter of a litre plus three quarters of a litre equals 1 whole litre.



Example of decimal bonds to 10:

$$\begin{array}{l} 6.2 + 3.8 = 10; 6.2 + 3.8 = 10 \\ \text{so} \\ 10 - 6.2 = 3.8; 10 - 3.8 = 6.2 \\ 4.9 + 5.1 = 10; 5.1 + 4.9 = 10 \\ \text{so} \\ 10 - 4.9 = 5.1; 10 - 5.1 = 4.9 \end{array}$$

- Play number ping pong!  
Start off saying 'ping', child replies with 'pong'. Repeat and then convert to numbers i.e. say '3.9' and they reply '7.8' (double 2 digit decimal) Or say, '7.8' and they say '3.9'
- Playing cards:  
Remove picture cards from the pack. Pick a card, state the multiplication and division fact that the child is working on.



e.g. Pick the '8' card  
so  $4 \times 8 = 32$  and 32 divided by 4 is 8

- Dominoes:  
Pick a domino from a set facing down. Choose one side to represent the whole number and the other side to be the tenth. Ask how much more to make 10.

e.g. picture shows 5.2, so 4.8 more makes 10.



<https://www.topmarks.co.uk/maths-games/hit-the-button> - number bonds to 100, doubles and halves, and all times tables and division facts



<https://www.studyzone.tv/game275-codel3fe7c386fa4ad7bb0ecdff05c8cec747>  
- timed number bonds to 100



<https://wordwall.net/resource/11719110/number-bonds-100> - wheel spin to 100



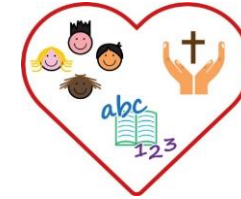
<https://www.topmarks.co.uk/times-tables/coconut-multiples> - times tables



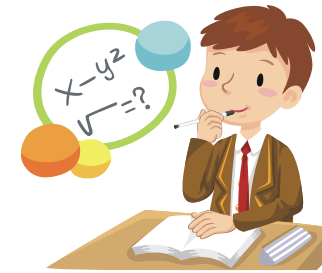
<https://www.topmarks.co.uk/maths-games/daily10> - lots of rapid recall activities covering all operations and concepts.



## St Matthew's CE School and Nursery



Help your child to learn maths facts.  
Year 6



Parent's and carer's guide to supporting  
children  
with the 'Learning by Heart' programme  
Summer 2021