

Spring Term 2: Know the doubles and halves of:

Numbers 1 to 100

Multiples of 10 to 1000

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 10 to 1000 → remind children about identifying multiples of 10:

all multiples of 10 end in 0 such as all 'tens', 'hundred' and all 'thousand' numbers e.g. 20, 80, 160, 580, 900, 340, etc

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, 7,200, 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

- 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, etc

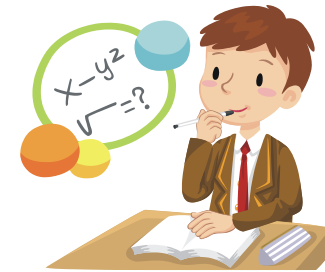
Great computer program:

<https://www.topmarks.co.uk/maths-games/hit-the-button>



St Matthew's CE School and Nursery

Rapid Recall And Deriving Facts Year 5



Parent's guide to support children with the
'Learning by Heart' programme
Spring 2022

'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.

Spring Term 1: To multiply and divide by 10, 100 and 1000

When you multiply by 10, 100 or 1000, the place value of the digits change. The number is getting greater so the digits move to the left.

Multiply by 10

When you multiply by 10 all the digits move one place to the left.

$$21 \times 10 = 210$$

H	T	O
2	1	0

The tens digit moves to the hundreds. The ones digit increases in value to become a ten. Why is there now a zero in the ones column?

You need to include a zero to represent the fact that now the other digits have increased in value. There are now no ones.

If you didn't include the zero in the ones, the number would still look like twenty-one, not two hundred and ten.

Multiply by 100

When you multiply by 100 move all the digits two places to the left.

$$21 \times 100 = 2100$$

Th	H	T	O
2	1	0	0

Multiply by 1000

What do you think will happen when you multiply by 1000?

The digits move three places to the left.

$$21 \times 1000 = 21,000$$

TTh	Th	H	T	O
2	1	0	0	0

If the place value of the digits increases and move to the left when multiplying, then it makes sense that the place value of the digits decreases and move to the right when dividing by a power of 10, since it is the inverse operation.

Dividing by 10

When you divide by 10 move the digits one place to the right.

$$210 \div 10 = 21$$

H	T	O
2	1	0

Since the digits have moved to the right, the zero also moves place value - it does not just disappear! The zero also moves to the right into the tenth's column after the decimal point.

So you could write 21.0. But since there's nothing to show after the decimal point, we just don't write it.

Dividing by 100

When you divide by 100, move the digits two places to the right.

$$2100 \div 100 = 21$$

Th	H	T	O
2	1	0	0

Dividing by 1000

If you divide by 1000 move the digits three places to the right.

$$21,000 \div 1000 = 21$$

TTh	Th	H	T	O
2	1	0	0	0

Vocabulary

multiply place value move digits greater divide smaller zero
place holder increase decrease thousands tens ones tenths
hundredths thousandths decimal point

Great program to use:

<https://mathsframe.co.uk/en/resources/resource/60/itp-moving-digits>

