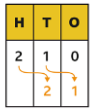
If the place value of the digits increases and move to the left when multiplying, then it makes sense that the place value of the digits decreases and move to the right when dividing by a power of 10, since it is the inverse operation.

Dividing by 10

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

210 ÷ 10 = 21

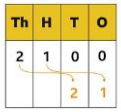


Since the digits have moved to the right, the zero also moves place value – it does not just disappear! The zero also moves to the right into the tenth's column after the decimal point. So you could write 21.0. But since there's nothing to show after the decimal point, we just don't write it.

Dividing by 100

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

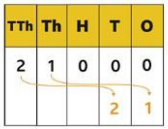
2100 ÷ 100 = 21



Dividing by 1000

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

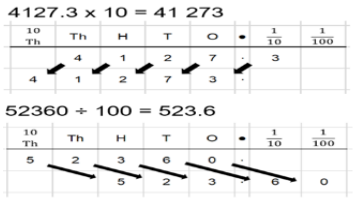
21,000 ÷ 1000 = 21



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:

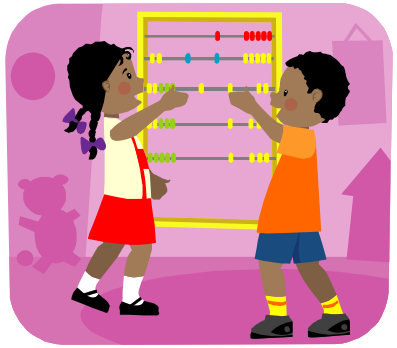
https://mathsframe.co.uk/en/resources/resource/60/itp-moving-digits



St Matthew's C.E. School and Nursery

Help your child to learn maths facts

Year 6



Parent's and carer'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 : Derive more complex multiplication and division facts building on tables facts – e.g., decimals and multiples of 10 etc

Help children to link their times tables facts to larger numbers e.g.

If I know 5 x 3 = 15
then 50 x 3 = 150
and 5 x 30 = 150
and 50 x 30 = 1500 All of these facts link to x 10 knowledge.

Extend this to knowledge of decimals e.g.

If I know 5 x 3 = 15
then 0.5 x 3 = 1.5
and 5 x 0.3 = 1.5 All of these facts link to ÷ 10 knowledge

If I know 8 x 7 = 56
then 0.8 x 7 = 5.6
and 8 x 0.7 = 5.6
and 0.8 x 0.7 = 0.56 All of these facts link to ÷ 10 knowledge

Practical ideas to help your child

It is really important that children are as confident with multiplication and division by 10 and 100, as this enables them to work with decimals.
Help your child to understand and remember the rules for x and ÷ by 10, 100 and 1000.

Rules:
When you multiply move the digits to the left, the number of zeros indicates how many places to move the digits e.g. x 10 move 1 place left, x 100 move 2 places left, x 1000 move 3 places left.
When you divide, move the digits to the right, the number of zeros indicates how many places to move the digits e.g. ÷ 10 move 1 place right, ÷ 100 move 2 places right, ÷ 1000 move 3 places right.

Spring Term 2 : To multiply and divide whole and decimal numbers 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.

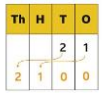
Multiply by 10

When you multiply by 10 all the digits move one place to the left.
21 × 10 = 210

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.

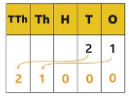
Multiply by 100

When you multiply by 100 move all the digits two places to the left.
21 × 100 = 2100



Multiply by 1000

What do you think will happen when you multiply by 1000?
The digits move three places to the left.
21 x 1000 = 21,000



Great program to use:
https://mathsframe.co.uk/en/resources/resource/60/itp-moving-digits
The same principle applies to decimal numbers: