

01.02.21

WALT: Use the grid method to multiply 4 digits x 2 digits

Vocabulary check

estimate

multiply

multiplicand

multiplier

product

place value

grid method

partitioning

associative law

distributive law

commutative law

$$\begin{array}{r} 15 \\ \times 2 \\ \hline 30 \end{array}$$

multiplicand
multiplier
product

What's wrong with this:

	120	5
20		
3		



Will this grid get the correct product? Can you convince me?

	110	15
20		
3		



So why do we do it like this?

		100	20	5
20				
3				

125 x 23



What's wrong with this:

		100	20	5
125 x 23	20	200	400	100
	3	300	60	15

What's wrong with this:

125×23

	100	20	5
20	2000	400	100
3	300	60	15

$$\begin{array}{r} 2000 \\ 400 \\ 100 \\ 300 \\ 60 \\ +15 \\ \hline \\ \hline \end{array}$$

Try it

Use the grid method to complete these calculations.

- Partition each number correctly
- How many rows, columns, cells will each grid have?
- Think about **place value** when you calculate each cell
- When you add to find the total product, **what do you need to be careful about?**

a) 351×24

b) 1265×14

c) 1265×28

How else could we have found the calculation to c)? Explain.

Use it

For each pair of calculations, can you decide which will have the greater product **without completing the calculation**? Explain how you know.

a) 351×9 or 951×3

b) 1265×32 or 1232×45

c) 888×10 or 777×11

Prove it



Meera says 27×35 will give the same product as 37×25 because multiplication is commutative. Explain why she is wrong.

Complete and compare the grid for each calculation. What is the same? What is different? Can you use this to convince me why she is wrong?

Challenge: Can you find an example of a pair of calculations when swapping the ones digits still gives the same product? Can you give a rule for when this will always work?