Tutorial 11   Multiplication Grid

Set the numbers in the multiplication calculation below the grid by clicking on the

triangles located above each digit ![00 triangles]. Enter the calculation 23 x 15. This will automatically place the numbers on to the outside of the grid as shown below.

Click on any ![?] to reveal the partial product as shown ![grid]. This

will also reveal the numbers ![sum] on the right-hand side of the screen.

To get the answer to the calculation, click on the = sign below the line and + sign.

Reset the screen by clicking on the icon. Increase the calculation to HTU x TU by clicking on the icon. This will change the grid automatically to

.

Enter the calculation 21 x 10.5 by using the up arrows above the digits.

Hover between the 0 and the 5 in the 105 to reveal the decimal point.

Click on this decimal point to make the decimal number 10.5

.

The decimal point will now be fixed in the calculation and on the grid.

Reveal the partial products and the calculation as shown before by clicking on all of the in the boxes.

For the answer click on the icon to reveal

.

Reset the Calculation ITP by clicking on and select the TU x TU option.

You can hide some or all of the numbers by clicking on the white rectangle next to or below each number in the calculation 00 x 00 = and each partitioned number

and

.

Enter the calculation 13 x 24 by clicking the appropriate number of times on the up arrows above the vertical digits △ .

Obtain the answer by clicking on the equals sign + _____ to reveal 312.

Q: What information is needed to work out what numbers were entered?

Q: Which bit of information will be the most helpful?

Reveal the number in the top right-hand box.

Q: What does this tell us about the calculation?

The units digit in the top row must be a 2 or a 4 (i.e. 20 x 2 or 10 x 4).

Q: Does this give us sufficient information to determine the original calculation?

Reveal another of the partitioned numbers by hovering next to the grid until a hand appears then clicking. For example:

x			
10	?	40	
	?	?	

40

+ _____

= 312

x = 312

This information now tells us that:

- the units digit in the top number must be a 4
- the units digit in the vertical number could therefore be a 3 or 8 to achieve the units digit 2 in the answer
- the tens digit in the vertical number must be 20 at most.

Revealing one more number leads to the answer.

x	20	4
10	200	40
3	60	12

200
40
60
+ 12
= 312

x = 312

Reveal the calculation by clicking on the rectangles

x = 312

underneath the calculation.

Use the Multiplication ITP to help develop children's understanding of the grid method of multiplication for whole and decimal numbers, and their ability to deduce and reason by applying their knowledge of number facts. Use the ITP to identify patterns, scan possibilities and reject cases that don't work by identifying multiples given the answer and some clues.