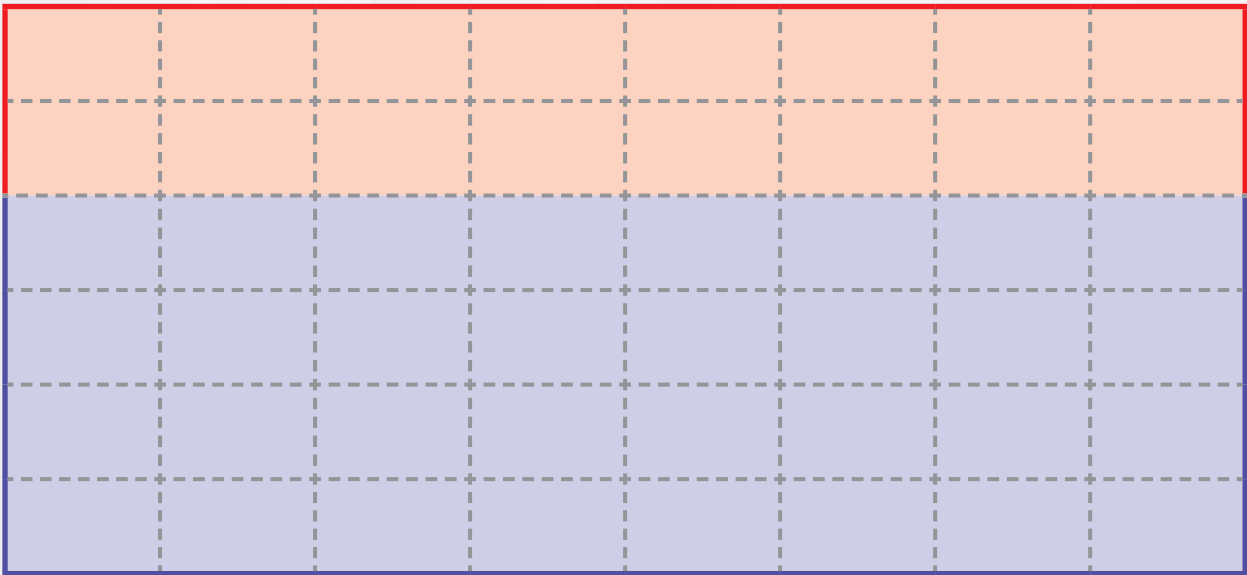


SPLIT THAT FACT



$$(2 \times 8) + (4 \times 8) = 6 \times 8$$

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Split that Fact

What's the point of this task?

This task asks students to split multiplication facts within the 10×10 range (12×12 at harder level). It introduces students to the distributive property of multiplication over addition; either of the two factors in a multiplication can be split (decomposed), multiplied separately, and then the results added together. The product is the same as if the 2 factors had been multiplied:

$$\begin{aligned} 8 \times 3 &= 24 \\ (8 \times 1) + (8 \times 2) &= 24 \\ 8 + 16 &= 24 \end{aligned}$$

This property helps students use known facts to learn unknown facts and to relate basic facts. It also lays the groundwork for learning to multiply 1-digit \times multi-digit numbers:

$$\begin{aligned} 7 \times 83 &= 581 \\ (7 \times 80) + (7 \times 3) &= 581 \\ 560 + 21 &= 581 \end{aligned}$$

and algebra:

$$5(\Delta + 3) = 5\Delta + 15$$

This activity has three levels of difficulty.

- Easy: Facts to 5×5
- Medium: Facts to 10×10
- Hard: $11 \times$ and $12 \times$ facts

Questions to facilitate the learning

Questions that might be asked include:

- How can splitting facts be helpful? (Students might observe that if they don't know a larger fact, they can use two smaller facts to help them.)
- What do you notice about the totals for each correct split? (They are the same.)

Curriculum connections

This activity relates to addition, multiplication and developing algebraic thinking. It also encourages the development of reasoning skills, particularly working systematically; students might realise that working methodically makes it easier to track what splits have been made and which are left to find. Such working also makes it easier to notice patterns.

Scaffolding the learning

- How will you know if you have found all the splits?
- Is there a system you could use that would make it easier to know this?

Extending the learning

Once students feel confident splitting facts within the 10×10 range they can select the Harder level to work on $11 \times$ and $12 \times$ facts, or explore Split that Fact 2. In Split that Fact 2, students use the distributive property to solve 1-digit \times 2-digit multiplication problems.

