

Success with MATH FACT FLUENCY

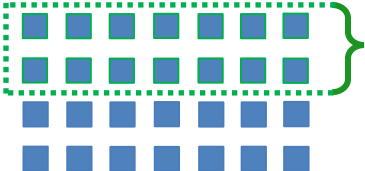
Teachers + Students + Parents

When is doubling useful? What does doubling look like?

Doubling: $\times 4$

It works great for the 4s facts, and is sometimes called Double and Double Again. Have a look!

Marvin arranged his new set of Legos into four rows. Each row has seven pieces.





I know...
2 groups of 7 is
14:
 $2 \times 7 = 14$

Doubling 14 is 28:
 $14 + 14 = 28$

Thinking about $14 + 14$ is more efficient than skip counting, $7 + 7 + 7 + 7$.

Extending Doubling: $\times 6$ and $\times 8$

Doubling works for other even numbers, like 6 facts and 8 facts. Once your child knows their 3s facts, they double to solve for 6s; once they know their 4s facts, they double to solve 8s. Have a look at a fact that is commonly difficult for children: 7×6 or 6×7 .



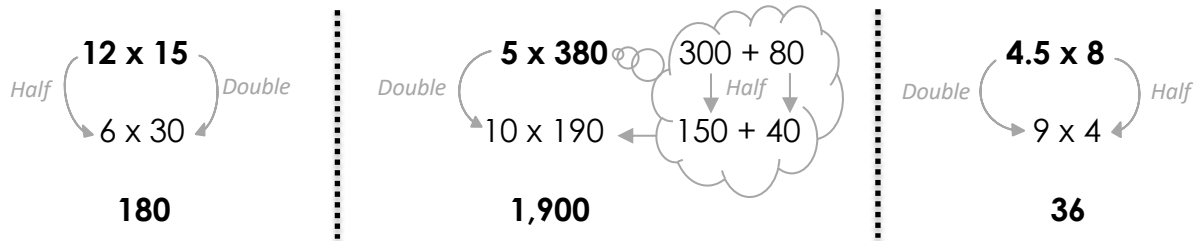
6 \times 7 means 6 groups of 7.
I know $3 \times 7 = 21$. I double
21 to get 42.
 $6 \times 7 = 42$.

Extending Doubling: Beyond Basic Facts

(see "fact #5" above)

Doubling and halving turns problems into ones that can be solved mentally – *very useful!*

Examples:



Multiplication Strategy Brief: *Doubling*

Research-based *learning facts*:

1. Students start learning multiplication facts by skip counting. That is natural, but they must progress to more efficient reasoning strategies.
2. Implementing reasoning strategies may initially be slower than counting, but eventually it is faster and will lead to quick recall (automaticity), with the added (critical) benefit of long-term retention (rather than forgetting a fact and having to drop back to skip counting).
3. Visuals and stories help students to understand the reasoning strategy.
4. Mathematical reasoning emerges as children notice patterns and relationships through repeated opportunities. Playing purposeful math games is a great way to do this.
5. Reasoning strategies themselves are important to learn because they generalize to larger numbers. Learning the strategies builds stronger math skills!

Thank you for your support in developing fact fluency with your child!
