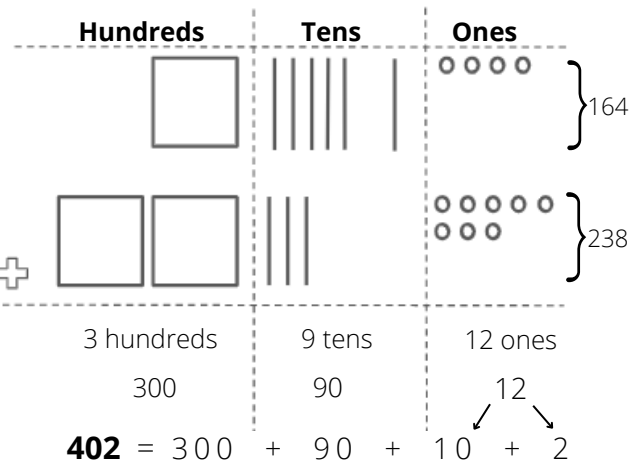


Addition: Base Ten

$$164 + 238$$



Addition: Expanded Form

$$\begin{array}{r} 100 + 60 + 4 \\ + 200 + 30 + 8 \\ \hline 300 + 90 + 12 \\ \swarrow \searrow \\ 300 + 90 + 10 + 2 \\ \hline 300 + 100 + 2 = 402 \end{array}$$

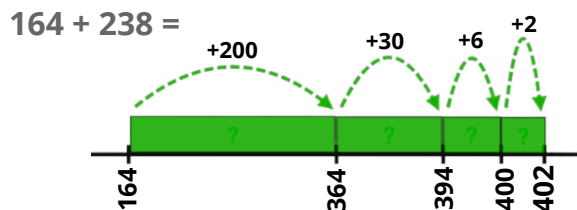
I know 12 is made up of 1 ten and 2 ones

Addition: Partial Sums

$$\begin{array}{r} 164 \\ + 238 \\ \hline 300 \\ 90 \\ + 12 \\ \hline 402 \end{array}$$

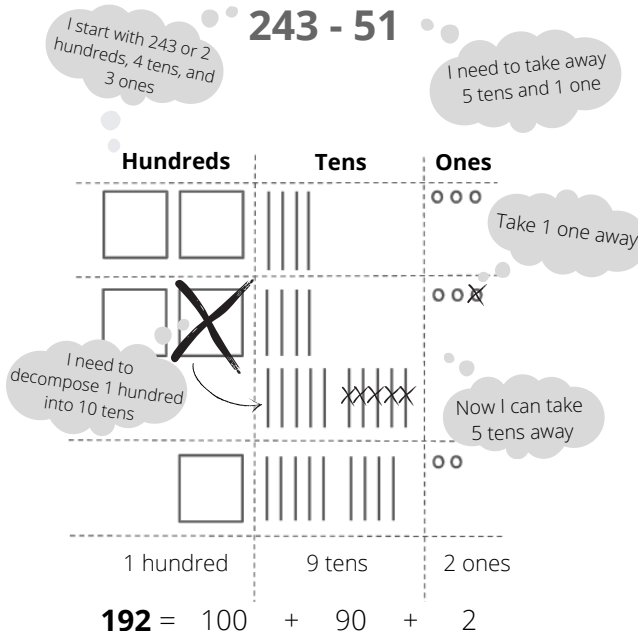
→ (100 + 200) hundreds
→ (60 + 30) tens
→ (4 + 8) ones

Addition: Open Number Line



Subtraction: Base Ten

$$243 - 51$$

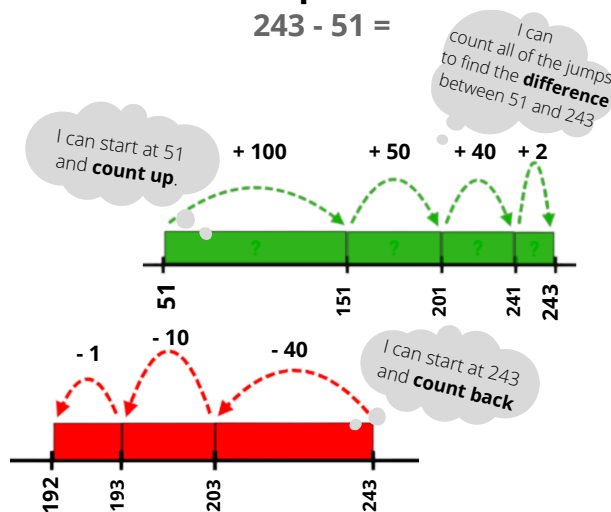


Subtraction: Expanded Form

$$\begin{array}{r} 243 - 51 = \\ \begin{array}{r} 2 \text{ hundreds} + 4 \text{ tens} + 3 \text{ ones} \\ - 1 \text{ hundred} + 5 \text{ tens} + 1 \text{ one} \\ \hline 1 \text{ hundred} + 9 \text{ tens} + 2 \text{ ones} \\ = 192 \end{array} \end{array}$$

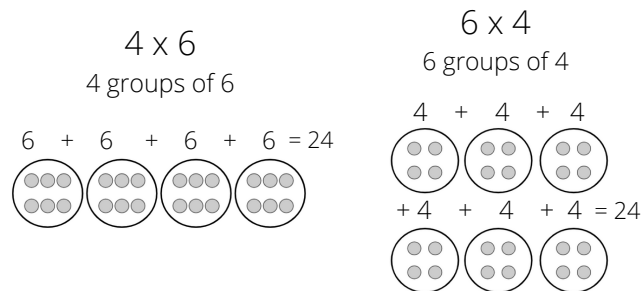
$$\begin{array}{r} 200 + 40 + 3 \\ - 100 + 50 + 1 \\ \hline 100 + 90 + 2 \\ = 192 \end{array}$$

Subtraction: Open Number Line

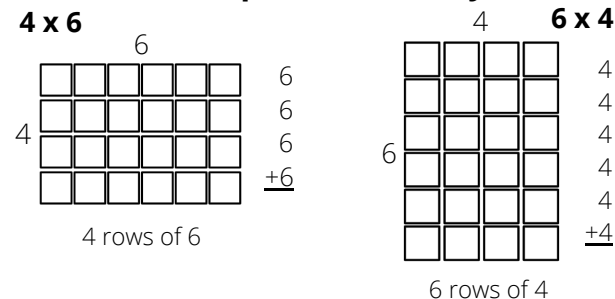


Multiplication:

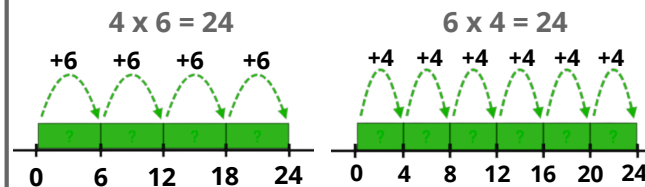
Equal Groups and Repeated Addition



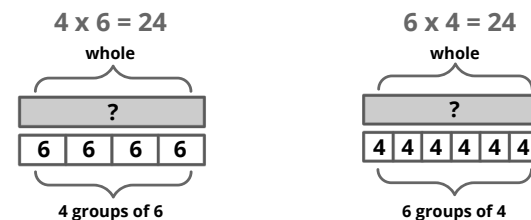
Multiplication: Arrays



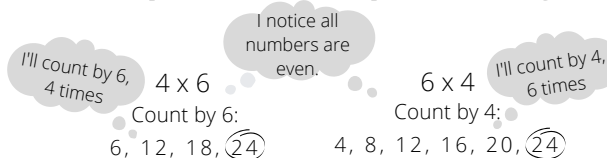
Multiplication: Open Number Line



Multiplication: Bar Model

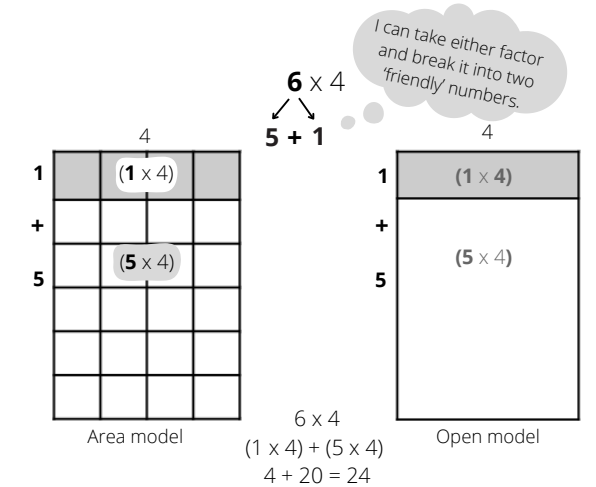
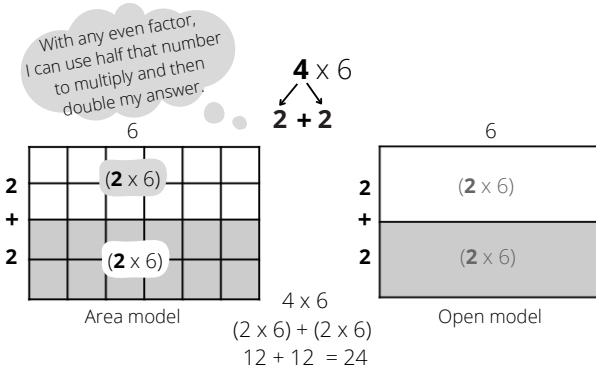


Multiplication: Skip Counting



Multiplication: Area/Array Model

The area/array model for multiplication and the distributive property are used to solve multiplication problems.



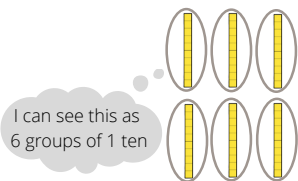
Multiplication: Multiples of 10

$$6 \times 10 = 60$$

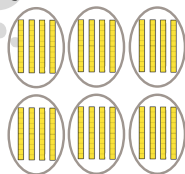
$$6 \times 1 = 6$$

$$6 \times 1 \text{ ten} = 6 \text{ tens}$$

$$6 \times 10 = 60$$



I can see this as 6 groups of 4 tens



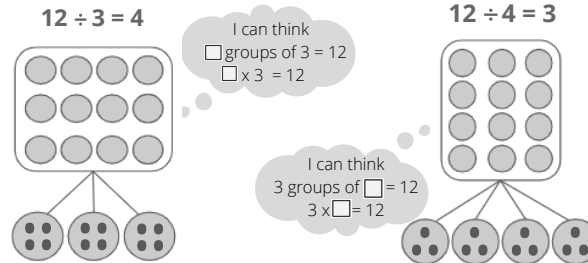
Division: Fair Share

Multiplication and Division are related. When working with division, it sometimes makes sense to "think multiplication".

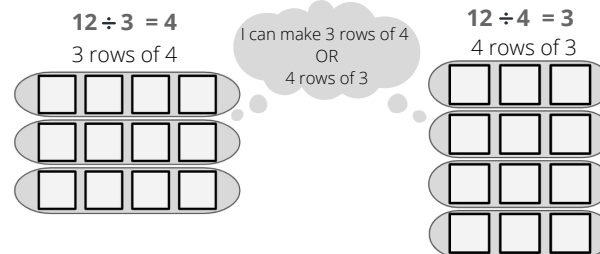
Matthew divides 12 cookies equally among his 3 friends. How many cookies does each friend receive?

OR

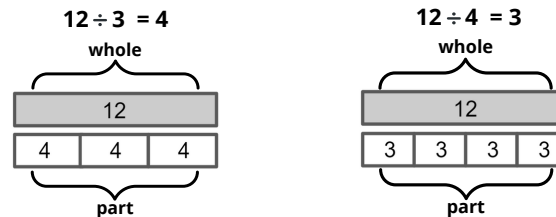
Mackenna has 12 cookies. She gives 3 to each friend. How many friends does she have?



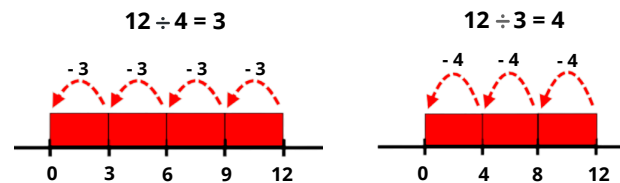
Division: Array



Division: Bar Model



Division: Number Line



Grade 3 Models and Strategies

- Addition
- Subtraction
- Multiplication
- Division

This brochure highlights some of the models and strategies used to develop computational fluency through a deep understanding of place value, number sense, and properties of operations.

By learning multiple strategies, students think flexibly, make connections, and choose the most effective and efficient strategy for problem solving.

