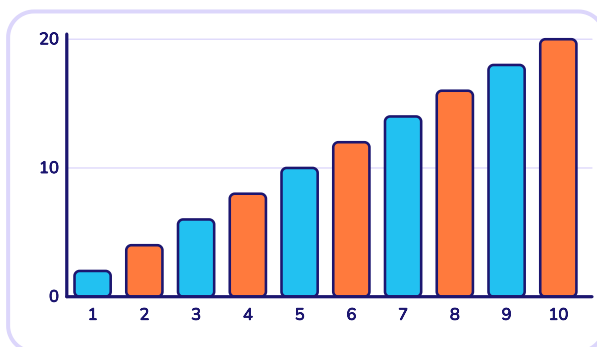


Addition and Subtraction Fluency Within 20: math lesson, Grade 2 – download the PDF

In Grade 2 you get faster and smarter with facts up to 20. Instead of counting one by one, you will use strategies: doubles, making ten, and fact families. Let's build your math toolbox!

1. Doubles and Near Doubles

A **doubles fact** adds a number to itself, like $6 + 6 = 12$. Doubles are easy to remember, and they help you with many other facts.



D

Doubles and near doubles

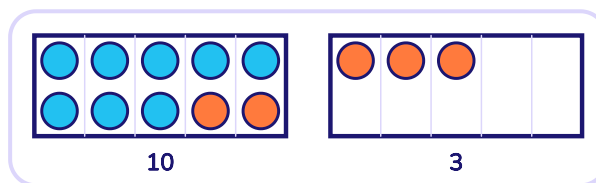
A **double** is a number added to itself: $8 + 8 = 16$. A **near double** is two numbers that are 1 apart, like $8 + 9$. Use the double you know, then add or subtract 1.

E**Example 1: a near double**

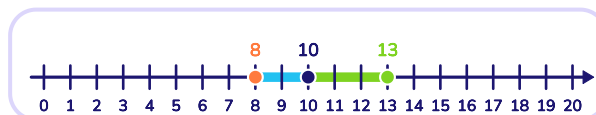
Find $7 + 8$. Think: $7 + 7 = 14$, and 8 is one more than 7, so $7 + 8 = 14 + 1 = 15$.

2. The Making Ten Strategy

Ten is a friendly number. To add $8 + 5$, first make a ten: 8 needs 2 more to reach 10. Split the 5 into $2 + 3$.

**M****Method: make a ten**

1. Start with the bigger number (here 8).
2. Find how many more make 10 (here 2).
3. Break the other number into that part and what is left (here $5 = 2 + 3$).
4. Add the ten and the rest: $10 + 3 = 13$.

**E****Example 2: make ten**

Find $9 + 6$. Take 1 from the 6 to make $9 + 1 = 10$. What is left is 5. So $9 + 6 = 10 + 5 = 15$.

3. Adding Three Numbers

You can add three numbers in any order. The sum stays the same! Look for two numbers that make ten, or for a double, and add those first.

P Order property

You can add numbers in any order and the sum stays the same: $4 + 9 = 9 + 4$ and $3 + 5 + 7 = 7 + 3 + 5$.

E Example 3: three addends

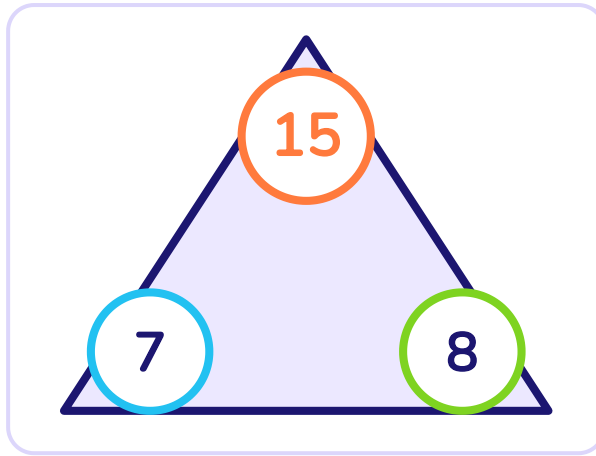
Find $6 + 7 + 4$. Spot $6 + 4 = 10$. Then $10 + 7 = 17$. So $6 + 7 + 4 = 17$.

⚠ Careful!

Do not forget the third number. After $6 + 4 = 10$, you still need to add the 7.

4. Related Facts and Fact Families

Addition and subtraction are **opposites**. They undo each other. Three numbers can make a whole **fact family**.



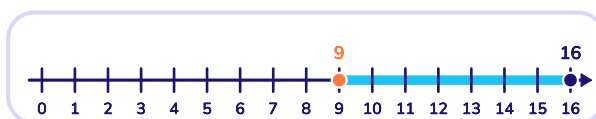
D Fact family

A fact family uses the same three numbers. For 7, 8, and 15: $7 + 8 = 15$, $8 + 7 = 15$, $15 - 7 = 8$, and $15 - 8 = 7$. The whole (15) is the biggest number.

When a subtraction is hard, turn it into an addition. For $15 - 8$, ask: “What goes with 8 to make 15?” Since $8 + 7 = 15$, the answer is 7.

5. Missing Addend Problems

A **missing addend** is a part you do not know yet, like $9 + \square = 16$. Count up from 9 to 16, or use subtraction: $16 - 9 = 7$.



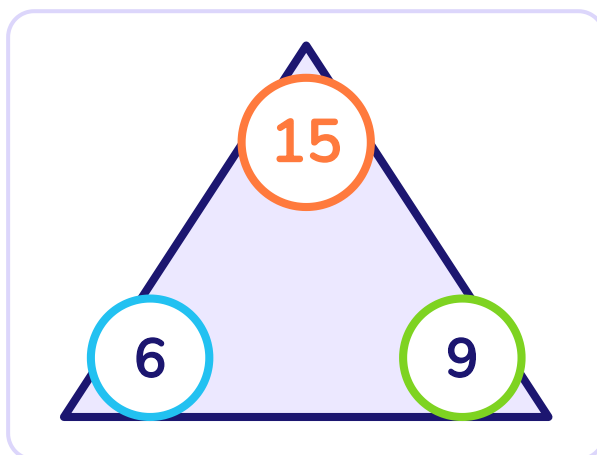
M Method: find the missing part

1. Find the whole and the part you know.
2. Count up from the part to the whole, or subtract: whole minus part.
3. Check by adding: $9 + 7 = 16$.

E Example 4: a story problem

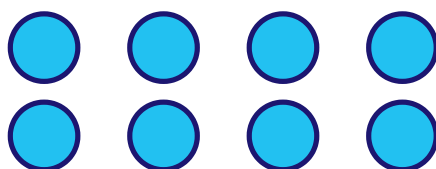
Lena has 8 shells. She wants 15. How many more does she need? Solve $8 + \square = 15$.

Since $15 - 8 = 7$, she needs 7 more shells.

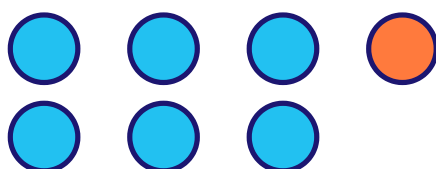


6. Even and Odd Numbers

An **even** number can be split into two equal groups or into pairs with nothing left. An **odd** number always has one left over.



8: even, no one left over



7: odd, one left over

D Even and odd

Even numbers end in 0, 2, 4, 6, or 8. Odd numbers end in 1, 3, 5, 7, or 9. A double is always even: $6 + 6 = 12$.

! Zyro's tip

On my planet we pair up space rocks! If every rock has a buddy, the number is even. If one rock is alone, it is odd.

7. Mental Math Strategies

Good mathematicians pick the strategy that fits the numbers. Here is a quick guide.

Numbers look like...	Strategy	Example
Same number twice	Doubles	$9 + 9 = 18$
Numbers 1 apart	Near doubles	$6 + 7 = 6 + 6 + 1 = 13$
One number close to 10	Make ten	$9 + 4 = 10 + 3 = 13$
A subtraction	Think addition	$13 - 6: 6 + 7 = 13$, so 7
A small number added	Count on	$12 + 2 = 14$



Example 5: choose a strategy

Find $17 - 9$. Think addition: $9 + 8 = 17$, so $17 - 9 = 8$.

Key takeaways

- A double adds a number to itself, and a near double is a double plus or minus 1.
- To make ten, move part of one addend to the other: $8 + 5 = 10 + 3$.
- Three numbers can be added in any order, so look for ten first.
- Fact families use the same three numbers: two additions and two subtractions.
- To find a missing addend, count up or subtract the part from the whole.
- Even numbers make pairs with none left over, and odd numbers have one left over.



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