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Developing Mathematical Reasoning.

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HOW ARE YOU THINKING ABOUT ADDITION RIGHT NOW?

Did you learn something like Touch Math? Was your addition instruction primarily centered around algorithms? How do you think about addition problems now?

In this section, focus on the way your brain handles these problems. Solve the problem, then read the descriptions underneath and choose one that best fits your thinking.

How do you think about $58 + 5$ and $87 + 98$?

$$58 + 5$$

- If you started at 58 and counted by ones: $59 \rightarrow 60 \rightarrow 61 \rightarrow 62 \rightarrow 63$ (not picturing or writing numbers with arrows, but counting one by one, whether in your head or somewhere else), then you were using a Counting Strategy.
- If you thought about getting from 58 to 60 and that takes 2, then 3 more to 63, then you were using an additive strategy.

$$87 + 98$$

- You lined up the digits in columns and thought: $7 + 8$. $7.8 \rightarrow 9 \rightarrow 10 \rightarrow 11 \rightarrow 12 \rightarrow 13 \rightarrow 14 \rightarrow 15$. Write down the 5, carry the 1. Now, $8 + 9 + 1$: $8.9 \rightarrow 10 \rightarrow 11 \rightarrow 12 \rightarrow 13 \rightarrow 14 \rightarrow 15 \rightarrow 16 \rightarrow 17 \rightarrow 18$. Write down the 18 next to the 5, 185. If you did these steps and found the single-digit additions by counting by ones, then you were using a Counting Strategy.
- You lined up the digits in columns and thought: $7 + 8$ is like $7 + 10$, back up 2, so 15. Write down the 5, carry the 1. Now, $8 + 9 + 1$. And $9 + 9$ is 18, so $8 + 9$ is 17, add the carried 1 is 18. Write down the 18 next to the 5, 185. If you did these steps and reasoned about the single-digit additions, you were using Additive Reasoning with single-digit numbers.
- If you thought $87 + 98$ is like $87 + 100 = 187$, but it's 2 too much, so 185, you were using Additive Reasoning with multidigit numbers.

TIP

Use these orienteering/navigating questions with students to determine how they are reasoning.