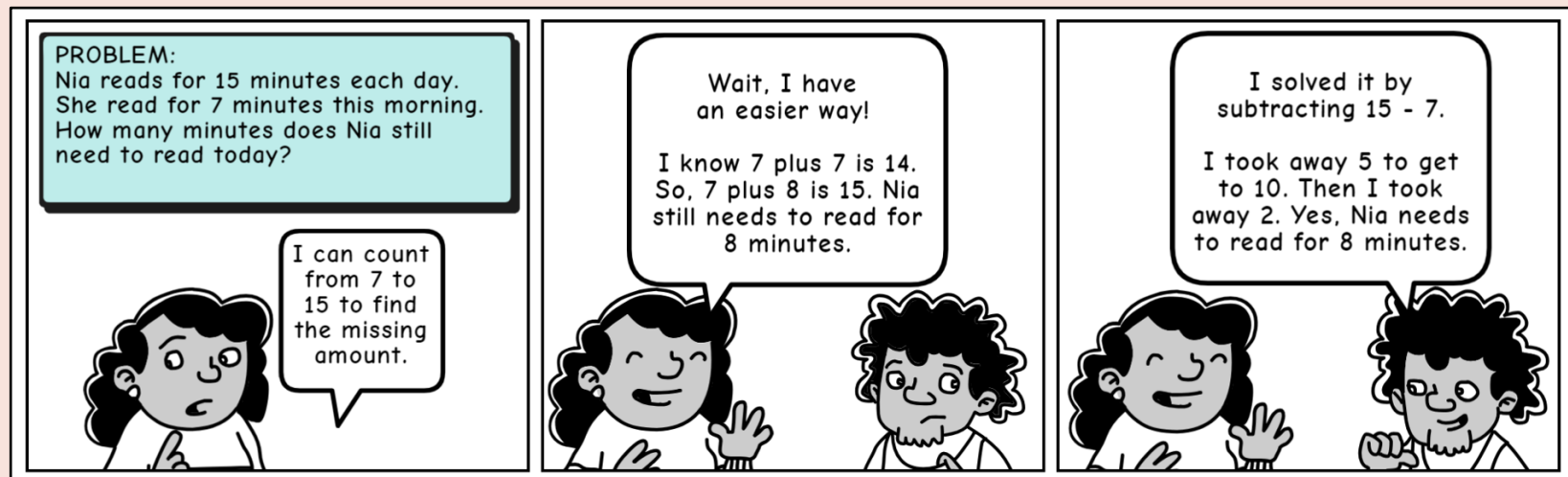




## What is the relationship between conceptual understanding and procedural fluency?

Fluency and understanding are often seen as separate parts of mathematics, but the two are interwoven. As students engage in problem solving, they build conceptual understanding and establish procedures for addition and subtraction. Students flourish in mathematics when opportunities for developing understanding precede and coincide with learning procedures. Through instruction based around problem solving experiences, students become flexible thinkers and develop efficient strategies for adding and subtracting. Read [NCTM's Position Statement on Procedural Fluency](#) to learn more.

## What does this look like?



The chart on the following page outlines each grade level's addition and subtraction fluency goals and the underlying behaviors for building conceptual understanding.

Click on each grade level to access additional resources.



# Developing Proficiency with Whole Number Addition & Subtraction



	Building Understanding	Fluency Goals*
<u>K</u>	Count, compare numbers, and identify '1 more'. Recognize and combine sets to 5. Use objects and drawings to model addition and subtraction within 10. Compose and decompose numbers within 10.	Add and subtract within 5.*
<u>1</u>	Use properties of operations to add and subtract within 20. Use the relationship between operations to add and subtract within 20. Use place value understanding to begin to add and subtract within 100.	Add and subtract within 10.*
<u>2</u>	Use models and drawings to add and subtract within 1000. Use place value understanding and relationship between operations to add and subtract within 1000.	Add and subtract within 20.* Add and subtract within 100.*
<u>3</u>	Extend prior understandings to add and subtract numbers within 1,000.	Add and subtract within 1,000.*
<u>4</u>	Extend prior understandings to add and subtract numbers within 100,000.	Use the standard algorithm to add and subtract within 100,000.*

\*Fluency goals are met by doing all three of the following:

- **Efficiently** select and use strategies. This means students select and use the easiest strategy for the situation.
- **Flexibly** adopt and adapt strategies. This means students know more than one strategy and can modify strategies as needed.
- **Accurately** solve problems. This means students get the correct answer.