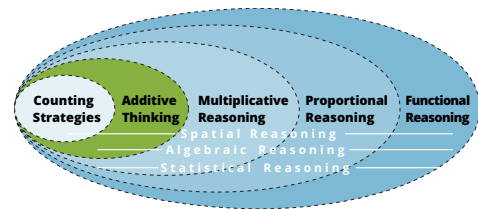


What Does it Mean to Think Additively? Part of the Development of Mathematical Reasoning

What is Additive Thinking?

Additive Thinking builds on Counting Strategies when developing mathematical reasoning. It uses prior knowledge of existing relationships between different numbers to make inferences about their sum. Additive thinking is built upon counting strategies but is different in that it considers what students know about numbers and the relationships between the numbers, and not just the counting sequence. For instance, if a student is asked to find the total of 99 and 57, they could additively reason that by subtracting one from 57, adding it to 99, and combining the remainder would give you the sum of 156. Additive thinking is important because it builds from counting strategies and creates a foundation for developing more sophisticated mathematical reasoning.



The Development of Mathematical Reasoning

What does Additive Thinking look like?

Counting Strategy



In the example above, the student is counting one by one, shown by individual jumps on the open number line to solve the problem $37 + 14$.

Additive Reasoning



In this example, the student uses their knowledge of numbers in relation to units of 10 to solve the same problem, $37 + 14$.

What does Additive Thinking look like in practice?

Below are four videos that demonstrate students' thinking.

In this video, the student demonstrates counting strategies to solve the problem $38 + 6$.

In this video, the student demonstrates counting strategies to solve the problem $14 - 8$.

In this video, the student demonstrates additive thinking to solve the problem $38 + 6$.

In this video, the student demonstrates additive thinking to solve the problem $14 - 8$.