

Strategies for Teaching Addition Facts with Understanding

Many middle school students use inefficient strategies for mental addition. The most prevalent are “counting on by ones” (usually using fingers) and doing the written algorithm “in the air”.

Mastery of the addition facts is essential if students are to move beyond these inefficient strategies.

A sequence for teaching addition and multiplication number facts is:

- Teach the number facts using strategies that are understood by the students.
- Have the students practice these strategies until they can find the answers with near perfect accuracy. Practice can include games, flash cards and activity sheets.
- Use a variety of games, flash cards, activity sheets and drill exercises over a period of time to build speed and accuracy, and (eventually) recall.

Addition Strategies

Counting On

An efficient strategy for adding on 1, 2 or 3 is just **counting on**. For example, to add $7 + 2$, think: 7, 8, 9.

Five-Frame

For sums less than 10, using 5 as a bridge can be useful. For example, to add $3 + 4$, think: $3 + 2$ makes 5, and 2 more makes 7. Students can use their fingers on one hand as their five-frame.

Ten-Frame

The ten-frame is useful for addition facts whose sum is more than 10. For example, to add $8 + 6$, think: $8 + 2$ makes 10, plus 4 more makes 14.

The concepts that students learn using the 10 frame can also be used to add larger numbers. For example, to add $68 + 7$, think: $68 + 2$ makes 70, plus 5 more makes 75.

Doubles and Near Doubles

Students that have a solid grasp of doubles can use this knowledge for adding near doubles. For example, to add $8 + 9$, think: double 8 is 16, plus 1 more is 17.

A student that doesn't know doubles can use a five-frame or a ten-frame to learn their doubles. For example, to double 8, think: $8 + 2$ makes 10, plus 6 more makes 16.

Mastery of doubles is important as doubles are a key step in helping students learn their multiplication facts.

Teaching Students to Think Flexibly

For many addition facts, there is more than one strategy that can be used. So a question you should frequently be asking when teaching these strategies is, “Is there another way..?”