

Supporting Mathematical Thinking through Formative Assessment

Building a Mathematical Community

Additional Resources: Classroom Strategy Charts

Key Ideas (from the Discussion Guide):

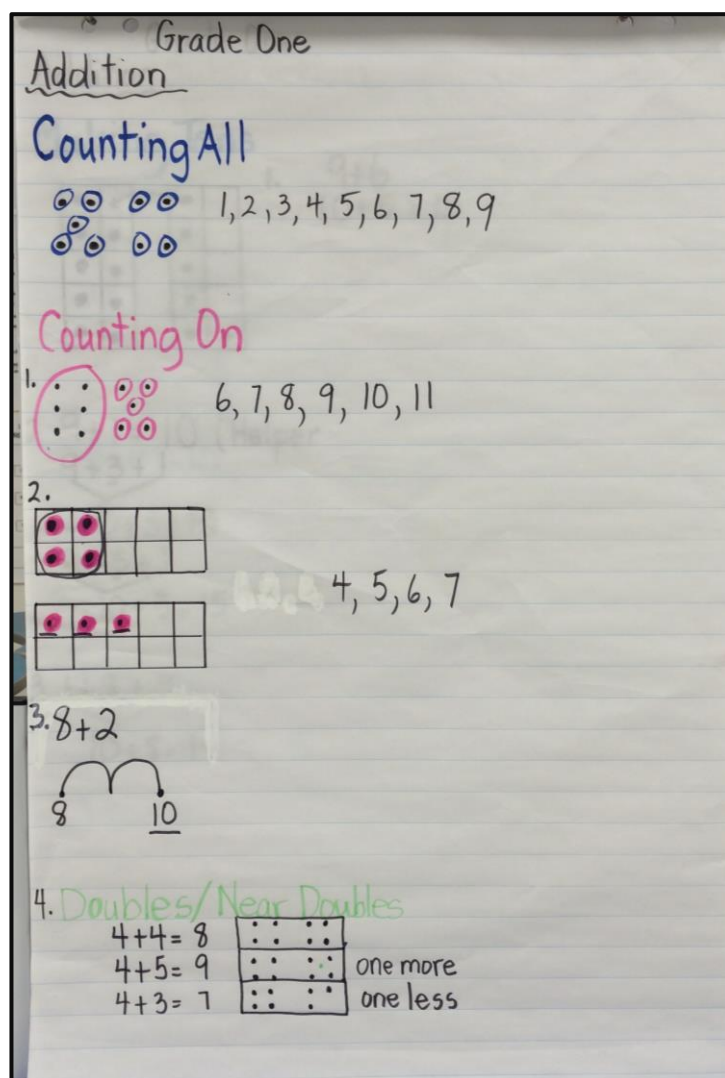
When teachers model and represent student thinking, it deepens student understanding and supports their ability to use the strategies on their own.

Teachers create a record a record of the various strategies that have been suggested and explored, and add to that list over time as new strategies are introduced.

Students are encouraged to compare different strategies and consider the efficiency of each. They begin by using strategies that make sense to them. Teachers honour those strategies, but through probing questions help students move toward strategies that are more efficient.

Here is an example of an addition strategy chart being used in a Grade 1 classroom.

Note: This chart does NOT represent all the strategies that the class will be investigating. It is added to as new strategies are introduced.



Here are examples of addition and subtraction strategy charts being used in a Grade 3 classroom.

Note: The charts do NOT represent all the strategies that the class will be investigating. They are added to as new strategies are introduced.

Grade Three

Addition Strategies

Making Ten

$$\begin{array}{r} 8+7 \\ 8+(2+5) \\ \hline 10+5=15 \end{array} \quad \begin{array}{r} 13+7= \\ (10+3)+7 \\ \hline 10+10=20 \end{array}$$

Adding from Left to Right/Place Value

$$\begin{array}{r} 50+25 \\ 50+20=70 \\ 7+5=+12 \\ \hline 82 \end{array}$$

Making a Friendly/Landmark Number

Compensation

$$\begin{array}{r} 78+26 \\ +2 \quad -2 \\ \hline 80+24=104 \end{array}$$

Grade Three

Subtraction Strategies

Adding Up

$$50-17$$

$$30+3=33$$

$$10+10+10=30$$

$$30+3=33$$

Counting Back

$$\begin{array}{r} 50-17 \\ 50-10=40 \\ 40-7=33 \end{array}$$

Decomposing the part (subtrahend)

$$82-17$$

$$\begin{array}{r} 82-10=72 \\ 72-2=70 \\ 70-5=65 \end{array}$$

“If I’m focusing on teaching an algorithmic procedure for students to learn, then it seems that one procedure is enough. If I’m focusing on helping students develop ways to reason, then multiple strategies are valuable... I think it’s important to keep the emphasis of math instruction in all instances on thinking, reasoning, and making sense.”

Marilyn Burns, marilynburnsmathblog.com (2016)