Grade: 1st **Topic:** Strategies for Addition and Subtraction within 20 (1.OA.6)

Key Vocabulary:

Efficient - providing an answer within 5 seconds; solving a problem with a strategy that saves time and labor

Composing - taking two lesser numbers and combining them to make a greater whole number

Decomposing - taking a whole number and breaking it into two smaller parts

Addend - the numbers that we add together to get a sum (total)

Sum - the result of adding two or more numbers

Difference - the result of subtracting one number from another; the amount by which one number is greater or less than another number

Doubles Fact - a math fact that involves adding two of the same numbers together

Equivalent - equal in value

Key Ideas:

Students are expected to develop sophisticated strategies to become more efficient with addition and subtraction within 20.

Most of the problems in first grade should be in the form of word problems, providing context with which to solve.

The table below describes examples of strategies. In addition to choosing strategies, students are expected to explain their thinking and how they used the strategy that they chose.

Addition and Subtraction Strategies

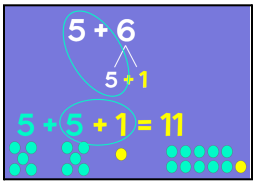
Counting On
Counting on can be used to add (find a total) or subtract (find an unknown addend). Students see the first addend as part of the total and continue the count to find the answer.

Making Ten
While adding two addends with a sum greater than 10, students may decompose one of the addends to make a group of 10.

Example: 9 + 6 = ____
9 + 1 + 5 = 15
10 + 5 = 15

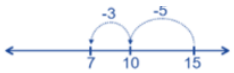
Counting Back
When counting back, students continue the count from the larger number and count backward to take the smaller number away while tracking their count.

Creating Equivalent Sums
When students know number combinations (facts) and apply their knowledge of doubles combinations to solve doubles + 1 and doubles + 2 combinations.



Decomposing a Number Leading to a Ten
The number being subtracted is decomposed in order to land on 10 and then the remaining number is subtracted.

Example: 15 - 8
15 - 5 = 10
10 - 3 = 7



Using the Relationship between Addition/Subtraction
When students use known addition number combinations (facts) to help them answer a subtraction problem
OR
When students solve a subtraction problem by adding up from the number they are subtracting until they reach the start number.

A number line is a representational tool that can be used to provide a visual to show how a student utilizes the strategies listed above.

Sample Problems:

There were 5 kids playing a game. Some more kids joined the game. Now there are 12 kids playing the game. How many kids joined the game? Write an equation that matches this story. Use a symbol for the unknown number. Solve the problem. Show your thinking with pictures, numbers, or words.	<u>Number String for a Number Talk:</u> The teacher displays the first equation only and asks students to think independently at first about different ways to get the answer. 6 + 6 = ____ 6 + 7 = ____ 5 + 6 = ____ Students share their ideas and strategies for the first equation in the number string. The teacher then displays the second equation and eventually the third equation using the same format.	The Red team has 4 fewer goals than the Blue team. The Blue team has 18 goals. How many goals does the Red team have? Write an equation that matches this story. Use a symbol for the unknown number. Solve the problem. Show your thinking with pictures, numbers, and/or words.