Topic B

Mental Strategies for Addition and Subtraction Within 20

2.OA.1, 2.OA.2

Focus Standard:	2.OA.1	Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
	2.OA.2	Fluently add and subtract within 20 using mental strategies. By end of grade 2, know from memory all sums of two one-digit numbers.
Instructional Days:	3	
Coherence -Links from:	G1–M2	Introduction to Place Value Through Addition and Subtraction Within 20
-Links to:	G2–M4	Addition and Subtraction Within 200 with Word Problems to 100
	G3–M2	Place Value and Problem Solving with Units of Measure

Now that students have practiced their Kindergarten and Grade 1 skills, they are ready to become more fluent with addition problems such as 8 + 7 and 5 + 9, where they must cross the ten. In Lesson 3, students make use of the ten-frame structure as they complete the unit of ten and add on the leftover ones. Students proceed to pictorial and abstract representations to demonstrate their understanding of separating the ten out from the ones, as in 8 + 4 = 12 (shown at right).

In Lesson 4, students add and subtract in the ones place within the teens. This sharpens their skill of separating the ten from the ones and applying their knowledge of sums and differences to 10 to the teen numbers (e.g., 13 + 2 = (10 + 3) + 2 = 10 + (3 + 2)). In this lesson, students also remember they can use a basic fact to subtract from the ones place when there are enough ones (e.g., 5 − 3 = 2 so 15 − 3 = 12). This understanding leads directly to Lesson 5, where students make the decision to subtract from 10 when there are not enough ones (e.g., 12 − 4, 13 − 5). Students subtract from ten when they solve a variety of one-step word problem types (**2.OA.1**). Subtraction from 10 is a strategy that a Grade 2 student uses to solve 12 − 8 and similar problems, by taking 8 from the 10 in 12. More importantly, this strategy lays the foundation for understanding place value and our unitary system. Students must determine if there are enough ones to subtract or if they must take the number from ten, thus paving the way for recomposing units when using a written method in Modules 4 and 5.

A Teaching Sequence Towards Mastery of Mental Strategies for Addition and Subtraction Within 20

Objective 1: Make a ten to add within 20.
 (Lesson 3)

Objective 2: Make a ten to add and subtract within 20.
 (Lesson 4)

Objective 3: Decompose to subtract from a ten when subtracting within 20 and apply to one-step word problems.
 (Lesson 5)