Grade 3 Math Lab

Module 1A (β)

Single Digit Addition Foundations

Conceptual Overview
The goals of this module are to lay a conceptually sound computation foundation and build single digit fluency. Given limited instructional time, skills were chosen based on their future benefit to student success as they move to multi-digit addition and multiplication. Students will progress through the following skills…

Make 10 → 10 Plus → 9 Plus → Applying Make 10
Doubles

Students will first fluently make 10 given any single digit number, e.g., students will be given 8 and will identify 2 as the make 10 partner, as in 8 + 2 = 10. Students will then fluently add to 10 in isolation, such as in the problems 10 + 4 or 10 + 7.

9 Plus and Applying Make 10 asks students to shift a small value to create a new, easier to compute problem; thereby offering a competitive strategy to more inefficient means of computations, such as counting on fingers. For example, in the problem 8 + 5, students will move the value of 2 from the 5 to the 8 to create a new problem, 10 + 3.

While working on Applying Make 10, students will invariably come across Doubles, such as 7 + 7 or 9 + 9. Instruction and practice with doubles can be done alongside Applying Make 10. Doubles will take on a particular focus as they lead directly into multiplication, being the primary strategy when multiplying by 2 and a prerequisite for multiplying by 3 and 4.

Total Number of Sessions: 8 – 14

Make 10

Concept Overview
Make 10 asks students to identify single-digit number pairs that make 10. For example, 9 + 1 and 8 + 2 are Make 10 partners. This skill lays the foundation for working effectively within our base 10 counting system. Students will later be asked to solve more challenging problems, such as 17 + 9, by moving the value 3 from the 9 to the 17 to make a new problem, 20 +6, a problem more easily computable with mental math. By the end of these sessions, students will be able to fluently identify make 10 partners: 5+5, 6+4, 7+3, 8+2, 9+1, and 10+0.

Likely Number of Sessions: 1-3

Learning Target: I can make 10 with any single digit number.
I can *fluently* make 10 with any single digit number.

Mastery Benchmark: Student can fluently make 10 with any single digit number. Fluency can be measured with oral response during independent practice times. Responses should take no more than 2 seconds per.

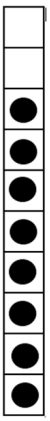
Instructional Menu

Choose from the instructional options below. Options can be mixed and matched and any one session may have multiple options represented.

Option 1: 10 Strip w/ Game Markers

Materials

10 Strips, 1 per student
Game markers, 10+ per student (two colors preferred)
(Optional) 10 Strip Record Sheet, 1 per student – this 10 Strip includes a space to record number sentences.



Instructional Considerations

First ask students to count the number of boxes on the 10 Strip. Start by placing 8 blue markers on the 10 strip. How many more do we need to **make 10**? Place two red markers to make 10. Explain that 8 and 2 are Make 10 partners and will go together a lot as we do more and more computation, especially with mental math. Continue finding make 10 partners with a variety of single digit numbers.

Option 2: Write Number Sentences

Materials

Whiteboards/markers or pencil/paper

Instructional Considerations

Ask students to write number sentences showing make 10 partners, such as 8 + 2 = 10. The instructor can call out a single digit number and students record on whiteboards or paper/pencil. This can be done in concert with 10 strips.

Option 3: Number Cards

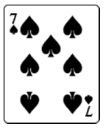
Materials

Number cards, 1 deck per student (Advanced Prep: Decks can be created using standard playing cards. Discard face cards. Split remaining cards to make two 20 card decks, two or each number per deck.)

Alternate Learning Target: I can *fluently* make 10 with any single digit number.

Instructional Considerations

Introduce number cards by explaining that one way our brains learn is through a lot of practice and repetition, and number cards help us get this practice in a short amount of time. Model putting one card down on the table and saying the Make 10 partner and the number sentence, e.g., put down 7 and say "3, 7 + 3 = 10." Model a few more examples, asking students to try it themselves or join in chorally.



Pass out decks and have students practice in partners or independently. Continue to model/reteach the importance of repetition and focus in their practice.

Mastery required before moving on. Can students fluently make 10 with any single digit number?

10 Plus

Make 10 → **10 Plus** → 9 Plus → Applying Make 10 Doubles

Concept Overview
10 Plus asks students to use their understanding of base 10 to fluently add a single digit number to 10, e.g., 10 + 4 = 14. This will become an important skill as students start using make 10 to solve addition problems.

Likely Number of Sessions: 1

Learning Target: I can fluently add a single digit number to 10.

Mastery Benchmark: Student can fluently add a single digit number to 10. Fluency can be measured with oral response during independent practice times. Responses should take no more than 2 seconds per.

Instructional Menu

Choose from the instructional options below. Options can be mixed and matched and any one session may have multiple options represented.

Option 1: 20 Frame w/ Game Markers

Materials
20 Frame, 1 per student
Game markers, 20 per student (two colors preferred)
(Optional) 10 Plus & 9 Plus Record Sheet, 1 per student – this 20 frame includes a space to record number sentences.

Instructional Considerations
Ask students to fill in the left column with blue game markers. How many blue markers did you need? Now add 4 red markers to the right column. How many markers do we have altogether? Why is it so easy to add to 10? Adding to 10 is easy because 10 is really just one 10 and zero 1;s, so adding to a single digit number is like adding to zero. Continue adding to 10 with a variety of single digit numbers.

Option 2: Write Number Sentences

Materials
Whiteboards/markers or pencil/paper

Instructional Considerations
Ask students to write 10 Plus number sentences, such as 10 + 4 = 14. This can be done in concert with 10 strips.

Option 3: Number Cards

Materials
Number cards, 1 deck per student

Instructional Considerations
Model using number cards to practice. Put down a 10 in front of you and keep it there for the duration of the practice. Place another random card, such as 7, next to the 10. Say the number sentence, e.g., "10 + 7 = 17." Pass out decks and have students practice in partners or independently.


Mastery required before moving on. Can students fluently add a single digit number to 10?

9 Plus

Make 10 → 10 Plus → **9 Plus** → Applying Make 10 Doubles

Concept Overview
9 Plus asks students to start moving values to *make 10*. For example, in the problem 9 + 6, students move the value of 1 from the 6 to the 9 to create a new problem, 10 + 5. Moving small values to *make 10* will quickly become one of the cornerstones of computational fluency.

Likely Number of Sessions: 1-2

Learning Target: I can fluently add a single digit number to 9.

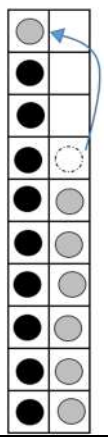
Mastery Benchmark: Student can fluently add a single digit number to 9. Fluency can be measured with oral response during independent practice times. Responses should take no more than 2 seconds per.

Instructional Menu

Choose from the instructional options below. Options can be mixed and matched and any one session may have multiple options represented.

Option 1: 20 Frame w/ Game Markers

Materials
20 Frame, 1 per student
Game markers, 20 per student (two colors preferred)
(Optional) 10 Plus & 9 Plus Record Sheet, 1 per student – this 20 frame includes a space to record number sentences.

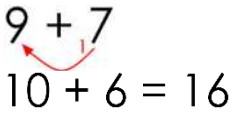


Instructional Considerations
Place 9 blue game markers in the left column and 7 red markers in the right column. Explain that now we are going to add to 9, but 10 is such a great number that we are going to still try to make 10 before we do any adding. How can we make 10? Move one red tile from the right column to the left column, making a new problem, 10 + 6. Notice that 1 is 9's make 10 partner. Continue adding to 9 with a variety of single digit numbers.

Option 2: Write Number Sentences

Materials
Whiteboards/markers or pencil/paper

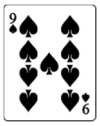
Instructional Considerations
Ask students to write 9 Plus number sentences, such as 9 + 7 = 16. Another option is to show moving the value of 1 to make 10 as in the example here… This can be done in concert with 20 frames or card practice.



Option 3: Number Cards

Materials
Number cards, 1 deck per student

Instructional Considerations
Model using number cards to practice. Put down a 9 in front of you and keep it there for the duration of the practice. Place another random card, such as 7, next to the 9. Pass out decks and have students practice in partners or independently. Continue to model/reteach shifting the value of 1 to the 9 to make 10.



Mastery required before moving on. Can students fluently add a single digit number to 10?

Applying Make 10 (w/ Doubles)

Make 10 → 10 Plus → 9 Plus → **Applying Make 10**
Doubles

Concept Overview
Where 9 Plus gives an introduction, Applying Make 10 gives a full application of the Make 10 addition strategy. Students will be asked to move values greater than 1 to *make 10*. For example, in the problem 8 + 5, students will move the value of 2 from the 5 to the 8 to create a new problem, 10 + 3. Notice the make 10 partners 8 and 2 are used.

Likely Number of Sessions: 3-5+, student will likely need continued review and practice to master this skill with fluency. Doubles, the next concept, will invariably come up during instruction and practice. After 1 or 2 sessions dedicated to Applying Make 10, conduct a session of two dedicated to Doubles.

Learning Target: I can use the Make 10 strategy to solve single digit addition problems.

Mastery Benchmark: Student can fluently add two single digits numbers by using the Make 10 strategy. Fluency can be measured with oral response during independent practice times. Responses should take no more than 2 second per. **Mastery is not required before moving on to Doubles.**

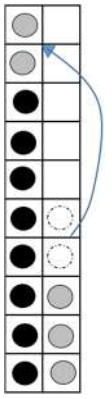
Instructional Menu

Choose from the instructional options below. Options can be mixed and matched and any one session may have multiple options represented.

Option 1: 20 Frame w/ Game Markers

Materials

20 Frame, 1 per student
Game markers, 20 per student (two colors preferred)
(Optional) Applying Make 10 Record Sheet, 1 per student – this 20 frame includes a space to record number sentences.



Instructional Considerations

Place 8 blue game markers in the left column and 5 red markers in the right column. Explain that much like 9 Plus, we will be moving a small value to make 10. What is this small value? Move 2 red markers to the left column, making the problem 10 + 3. Notice that 2 is 8's make 10 partner. Continue using the make 10 strategies to add two numbers. Include problems where the first number is smaller than the second, such as in the problem 4 + 7. Student do not have to move 6 away from the 7, but should instead move 3 away from the 4 to make 2 + 10.

You are free to keep one of the numbers the same. Such as solving problem that all start with an 8. Continue to model/reteach moving values to make 10 and make 10 partners. Make 10 partners help students immediately identify which small value should be moved.

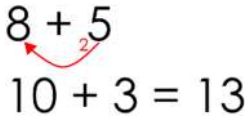
Option 2: Write Number Sentences

Materials

Whiteboards/markers or pencil/paper

Instructional Considerations

Ask students to show moving values to make 10, as in the example here… This can be done in concert with 20 frames or card practice. Continue reminding students of the importance of easily identifying make 10 partners and that moving these small values makes for easier-to-compute problems.



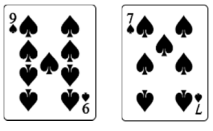
Option 3: Number Cards

Materials

Number cards, 1 deck per student

Instructional Considerations

Model using number cards to practice. Students can either 1) keep a card down, such as a 6, 7, 8, or 9 or 2) deal two random cards for each round. Some sums will be less than 10, as in the problem 6 + 3. This is fine. Remind students to make 10 when appropriate (when sums are larger than 10).



Applying Make 10 and Doubles can be taught simultaneously. Students do NOT require mastery of Applying Make 10 to receive instruction in Doubles.

Doubles (w/ Applying Make 10)

Make 10 → 10 Plus → 9 Plus → Applying Make 10

Doubles

Concept Overview

Doubles simply ask students to add a single digit number to itself, e.g., 4 + 4, 8 + 8, etc. This is an important skills as it is the first step into multiplication, being essentially the same as multiplying by 2, and will lay the foundation for the strategies used to multiply by 3 and 4. Students will be asked to Make 10 when doubling numbers larger than 5, e.g., 6 + 6 is turned into 10 + 2 by moving the value of 4 from one 6 to the other.

Likely Number of Sessions: 2-4+, student will likely need continued review and practice to master this skill with fluency. Instruction with doubles will likely start while examining Applying Make 10. Include dedicated practice with doubles.

Learning Target: I can fluently double any single digit number.

Mastery Benchmark: Student can fluently double any single digit number. Responses should take no more than 2 seconds per.

Instructional Menu

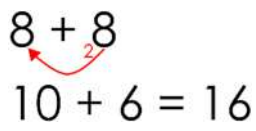
Choose from the instructional options below. Options can be mixed and matched and any one session may have multiple options represented.

Option 1: Whiteboards

Materials

Whiteboards and markers, 1 per student

Instructional Considerations



Explain to students that you will continue practicing applying Make 10 but will focus your practice on adding the same number to itself, such as 2 + 2 or 8 + 8. These are called doubles. Call out a number between 1 and 4 and have students write the sum on the board, e.g., teacher calls out 3 and students write 6. Continue doubles, but focus on 5 through 9. Instead of simply writing sums, have students write number sentences showing the moving value. Feel free to switching back to writing only sums to increase repetition once students are comfortable and start to gain fluency.

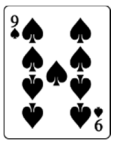
Option 2: Number Cards

Materials

Number cards, 1 deck per student

Instructional Considerations

Students can practice by dealing out one card and doubling it, e.g., deal a 9 and double it to make 18. Remind students to make 10 when appropriate (when sums are larger than 10) and to not count on fingers.



End of Module 1A. Students will likely not obtain full mastery of Applying Make 10 and Doubles. Continue review and practice as a math lab warm up in upcoming modules.