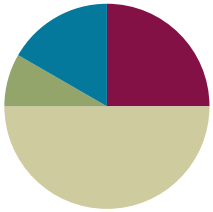
Lesson 3

Objective: Make a ten to add within 20.

Suggested Lesson Structure

Fluency Practice	(15 minutes)
Concept Development	(30 minutes)
Application Problems	(5 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**



Fluency Practice (15 minutes)

- Break Apart and Put Together by Place Value **2.OA.2** (2 minutes)
- Take Out a Part: Numbers Within 10 **2.OA.2** (2 minutes)
- Pairs to Make 10 with Number Sentences **2.OA.2** (2 minutes)
- One More, Ten More **2.OA.2** (9 minutes)

Break Apart and Put Together by Place Value (2 minutes)

Note: Students remember the relevance of their ten plus facts to larger numbers.

T: Let's play some number games! I say 10 + 5, you say 15. Ready?
T: 10 + 5.
S: 15.
T: 10 + 2.
S: 12.

Continue with the following possible sequence: 10 + 9, 10 + 4, 20 + 4, 50 + 4, 30 + 8, and 70 + 8.

T: How are 10 + 4 and 50 + 4 the same? How are they different?
T: How is knowing that helpful?
S: (Students share.)
T: Now, I say 13, you say 10 + 3.
T: 13.
S: 10 + 3.

Continue with the following possible sequence: 17, 11, 16, 18, 28, 78, 14, 34, and 94.

Take Out a Part: Numbers Within 10 (2 minutes)

Note: Taking out 1 prepares students for adding 9. The students make a ten, adding 9 and 6 by adding 9 and 1 and 5. Taking out 2 prepares students for adding 8. The students make a ten, adding 8 and 6 by adding 8 and 2 and 4.

T: Let's take out 1 from each number. I say 5. You say, 1 + 4.
T: 5. Get ready.
S: 1 + 4.
T: Now let's take out 2. If I say 6, you say 2 + 4.
T: 3.
S: 2 + 1.

Continue with possible sequence: 5, 10, 4, 7, 9, 8, 6.

Pairs to Make 10 with Number Sentences (2 minutes)

Materials: (S) Personal white boards

Note: This is a foundational skill for mastery of sums and differences to 20.

T: I'll say a number and you write the addition sentence to make 10 on your personal white board.
T: 5. Get ready. Show me your board.
S: 5 + 5 = 10.
T: 8. Get ready. Show me your board.
S: 8 + 2 = 10.

Continue with the following possible sequence: 9, 1, 0, 10, 6, 4, 7, and 3.

T: What pattern did you notice that helped you solve the problems?
S: You can just switch the numbers around! → If you say 8 and the answer is 8 + 2 = 10, then I know that when you say 2 the answer will be 2 + 8 = 10. → The numbers can switch places!

Sprint: One More, Ten More (9 minutes)

Note: In order to be flexible with adding and subtracting one unit, students first work with 1 more and 10 more.

Materials: (S) One More, Ten More Sprint

NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:

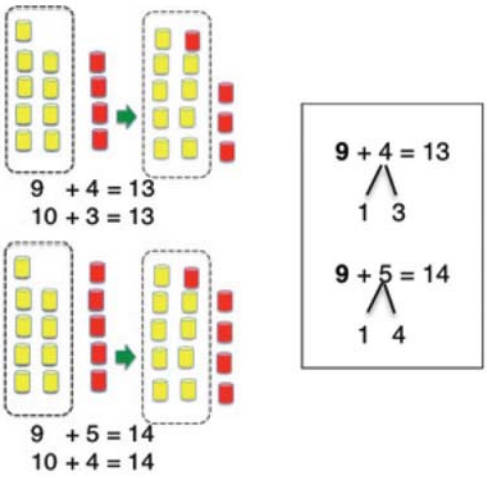
Some students may require extended time for Sprints:

- Create a differentiated Sprint for students whose IEPs warrant extra time by eliminating the last five problems.
- Extend time for the task based on individual student needs.
- Focus on goals for accomplishment within a time frame.
- Give students the opportunity to practice the sprint beforehand at home to help them remain calm and confident during the timed task.

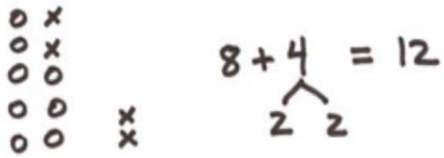
Concept Development (30 minutes)

Materials: (T) Two-color counters (S) Linking cubes in two colors, personal white boards, blank paper, set of ten-frame cards for numbers 8, 9, and 10, small bag of two-color counters

Note: The focus is making 10 from a large common addend (e.g., solving 9 + 4, 9 + 5, 8 + 4, 8 + 5). Call students to the carpet and as you move the cubes, leave them as shown at right so that students can compare solutions.



T: (Present 9 counters in one set and 4 in another set directly to the right, as shown at right.)
T: How many are here (signaling the set of 9)?
S: 9.
T: How many are here (signaling the set of 4)?
S: 4.
T: (Move an object from the 4 to complete the ten.)
T: How many are here?
S: 10.
T: How many are here?
S: 3.
T: What addition sentence combines these 2 sets?
S: 10 + 3 = 13.
T: (Move the 1 back to the original set of 4.)
T: What addition sentence combines these two sets?
S: 9 + 4 = 13.
T: (Repeat the process immediately with 9 + 5.)
T: Turn and talk to your partner to compare 9 + 4 and 9 + 5. (The goal is for students to look for and make use of structure as they complete the unit of ten and add on the ones that are left over.)
T: (After the students have analyzed the problems, numerically record the make ten solutions using the number sentences and bonds shown above.)
T: On your personal white boards, draw 8 circles in a ten-frame format.
S: (Draw 8 circles.)
T: Draw 4 crosses by completing the ten first. Draw the extras to the right.
S: (Draw 4 crosses.)
T: How much more does 8 need to make ten?
S: 2 more.
T: And how many are remaining to add to ten?
S: 2.

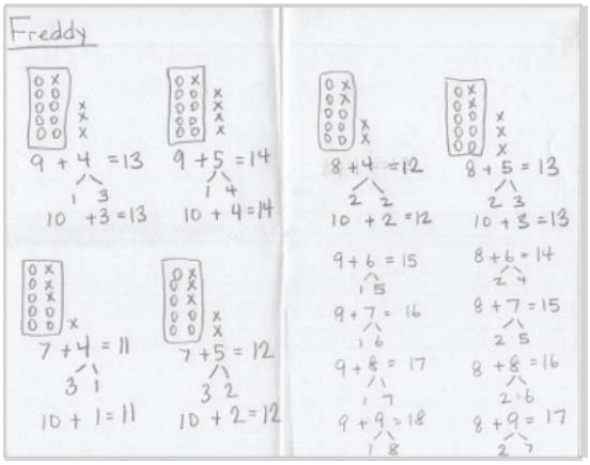


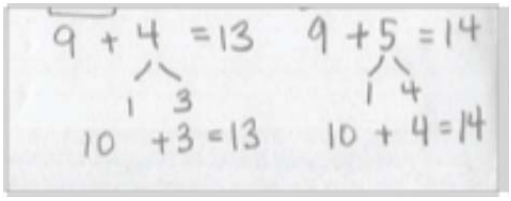
T: 8 + 4 is?
S: 12.
T: 10 + 2 is?
S: 12.
T: Record the make ten solution to 8 + 4 with number bonds to show that you broke 4 into 2 and 2 to make ten.
T: (Continue with 8 + 5.)
T: Show your work to your partner and tell what you notice about adding to 8.

MP.7

T: (After students respond.) Do you remember what you noticed about adding to 9? How are 9 + 4 and 8 + 4 the same and different? Use your linking cubes or your drawing to explain.
S: You have to make 10 with both. → We used 2 to make 10 when we added to 8, and 1 to make 10 when we added to 9. → We bonded 4 as 1 and 3 and 2 and 2.

The pencil and paper work below might follow directly after students have engaged with the teacher by working on their personal white boards solving 8 + 4 and 8 + 5.

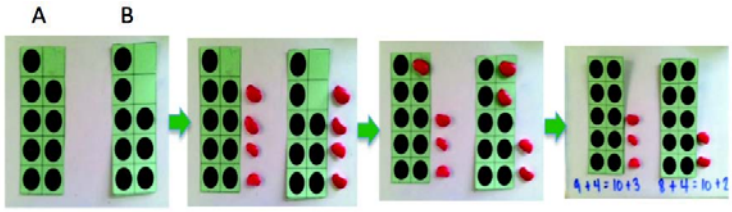




T: I don't want you to always need to draw as you solve these problems. Fold your paper so that you are only looking at the number sentences of 9 + 4 and 9 + 5. (Pause as students do so.)
T: Looking only at the number sentences, talk to your partner about the meaning of each number. What does 9 refer to as you remember the picture? 4? The bond of 1 and 3? The 13? 10 + 3?
T: Now look at your list of 9's facts. Do you notice a pattern that will help you get better at remembering these sums quickly? (The sums increase by one.)

Note: The focus in this next activity is making 10 when the smaller addend is in common. Give them lots of practice with sets of problems having a common addend, which helps them see relationships.

Directions: Pass out ten-frame cards and counters. Students model 9 + 4 and then 8 + 4 by making a ten. In the final frame of the sample sequence below, students cover 9 + 1 and 8 + 2 with a ten-frame card, clearly showing the 10 + fact within 9 + 4 and 8 + 4. Students write the equivalent statements: 9 + 4 = 10 + 3 and 8 + 4 = 10 + 2.



A: 9	9 + 4	9 + 1 + 3	10 + 3 = 13
B: 8	8 + 4	8 + 2 + 2	10 + 2 = 12

When finished with several sets of problems, students discuss with a partner how the problems within a set are the same and different.

NOTES ON MULTIPLE MEANS OF REPRESENTATION:

In this segment, students use the ten-frame model to reason about making 10 to add to the teens. Using the language of MP.2, "they pause to probe the referents" (i.e., ten-frames) "to relate them to the symbols involved" (numbers).

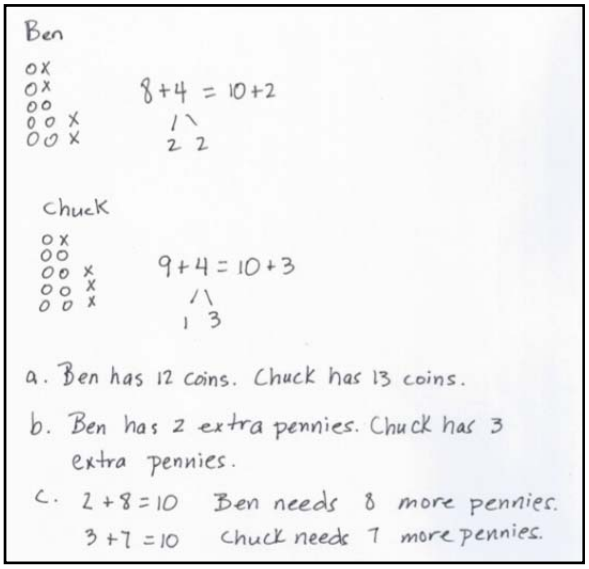
- Invite students to use models to calculate and explain their reasoning (e.g. 8 + 4 and 9 + 4 with linking cubes, or circles and crosses).
- Draw attention to *the meaning of the quantities* (8 needs 2 to be 10, etc.).
- Ask questions that require students to make connections between numbers (associating the 8 with the 2) and operations (e.g., 8 + _____ = 10, 10 – _____ = 8).

Application Problem (5 minutes)

Ben and Chuck collect dimes. They do it by first collecting pennies and then trading with their parents 10 pennies for 1 dime. Ben has 8 pennies and Chuck has 9 pennies. They each find 4 more pennies.

- How many pennies does each boy have before they trade?
- How many extra pennies does each boy have after they trade?
- How many more pennies does each boy need before he can trade for another dime?

Note: This problem allows students to apply today's concept of make a ten to add within 20 in a real-world context. Five minutes have been allotted for this time-frame task.



Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students solve these problems using the RDW approach used for Application Problems.

Student Debrief (10 minutes)

Lesson Objective: Make a ten to add within 20.

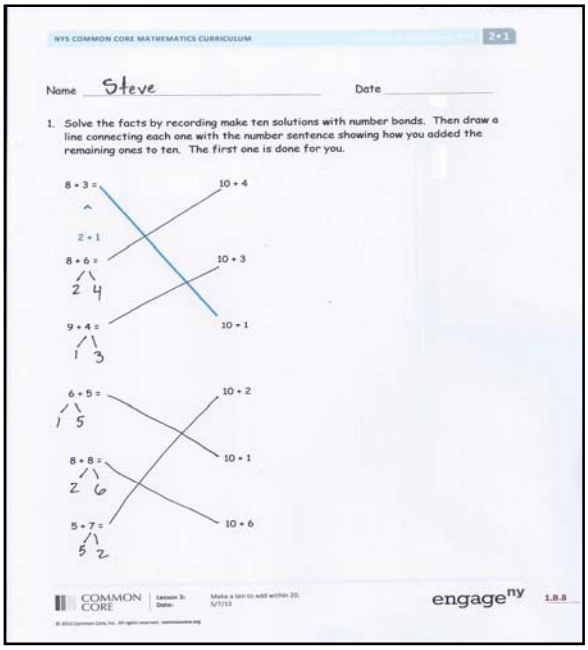
The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. You may choose to use any combination of the questions below to lead the discussion.

- Let's look at page one of your worksheet. How are 8 + 3 and 10 + 1 related?
- Talk to your partner about how we can explain that relationship using a drawing.
- How can you relate 19 + 5 and 20 + 4 to 9 + 5 and 10 + 4?
- What would be another set of problems to relate to 9 + 5 and 10 + 4?
- Talk to your partner about what you think is our lesson's focus today.

Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

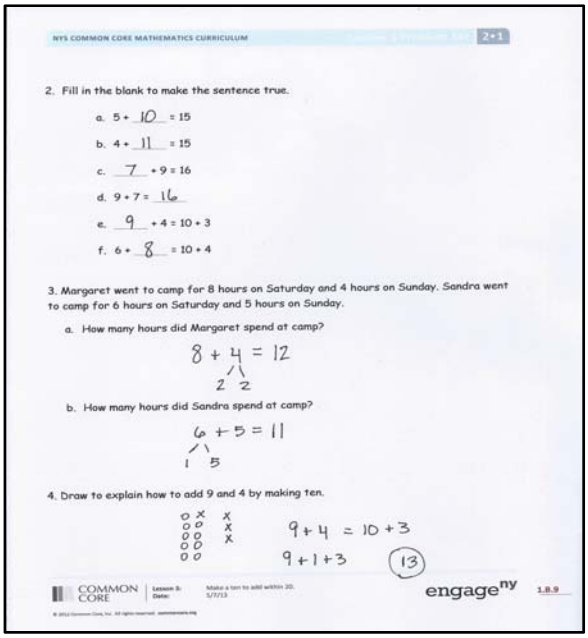

NYS COMMON CORE MATHEMATICS CURRICULUM 2•1

Name Steve Date

1. Solve the facts by recording make ten solutions with number bonds. Then draw a line connecting each one with the number sentence showing how you added the remaining ones to ten. The first one is done for you.

8 + 3 = 2 + 1 10 + 4
8 + 6 = 2 4 10 + 3
9 + 4 = 1 3 10 + 1
6 + 5 = 1 5 10 + 2
8 + 8 = 2 6 10 + 1
5 + 7 = 5 2 10 + 6

COMMON CORE engage^ny 1.B.8


NYS COMMON CORE MATHEMATICS CURRICULUM 2•1

2. Fill in the blank to make the sentence true.

a. 5 + 10 = 15
b. 4 + 11 = 15
c. 7 + 9 = 16
d. 9 + 7 = 16
e. 9 + 4 = 10 + 3
f. 6 + 8 = 10 + 4

3. Margaret went to camp for 8 hours on Saturday and 4 hours on Sunday. Sandra went to camp for 6 hours on Saturday and 5 hours on Sunday.

a. How many hours did Margaret spend at camp?

8 + 4 = 12
2 2

b. How many hours did Sandra spend at camp?

6 + 5 = 11
1 5

4. Draw to explain how to add 9 and 4 by making ten.

9 + 4 = 10 + 3
9 + 1 + 3 (13)

COMMON CORE engage^ny 1.B.9

A. Do as many as you can in 60 seconds.

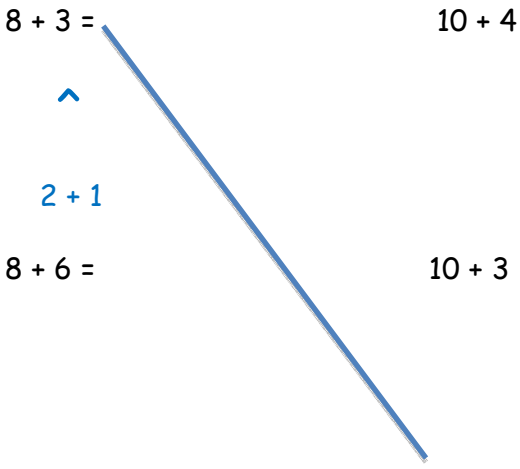
1	1 more than 4 is	16	2 + 10 =
2	10 more than 4 is	17	1 more than 5 is
3	4 + 1 =	18	10 more than 5 is
4	4 + 10 =	19	5 + 1 =
5	1 more than 1 is	20	5 + 10 =
6	10 more than 1 is	21	1 more than 6 is
7	1 + 1 =	22	10 more than 6 is
8	1 + 10 =	23	6 + 1 =
9	1 more than 3 is	24	6 + 10 =
10	10 more than 3 is	25	1 more than 8 is
11	3 + 1 =	26	10 more than 8 is
12	3 + 10 =	27	8 + 1 =
13	1 more than 2 is	28	8 + 10 =
14	10 more than 2 is	29	1 more than 7 is
15	2 + 1 =	30	7 + 10 =

B. Do as many as you can in 60 seconds.

1	1 more than 4 is	16	2 + 10 =
2	10 more than 4 is	17	1 more than 5 is
3	4 + 1 =	18	10 more than 5 is
4	4 + 10 =	19	5 + 1 =
5	1 more than 1 is	20	5 + 10 =
6	10 more than 1 is	21	1 more than 6 is
7	1 + 1 =	22	10 more than 6 is
8	1 + 10 =	23	6 + 1 =
9	1 more than 3 is	24	6 + 10 =
10	10 more than 3 is	25	1 more than 8 is
11	3 + 1 =	26	10 more than 8 is
12	3 + 10 =	27	8 + 1 =
13	1 more than 2 is	28	8 + 10 =
14	10 more than 2 is	29	1 more than 7 is
15	2 + 1 =	30	7 + 10 =

Name _____ Date _____

1. Solve the facts by recording make ten solutions with number bonds. Then draw a line connecting each one with the number sentence showing how you added the remaining ones to ten. The first one is done for you.



2. Fill in the blank to make the sentence true.

a. 5 + _____ = 15

b. 4 + _____ = 15

c. _____ + 9 = 16

d. 9 + 7 = _____

e. _____ + 4 = 10 + 3

f. 6 + _____ = 10 + 4

3. Margaret went to camp for 8 hours on Saturday and 4 hours on Sunday. Sandra went to camp for 6 hours on Saturday and 5 hours on Sunday.

a. How many hours did Margaret spend at camp?

b. How many hours did Sandra spend at camp?

4. Draw to explain how to add 9 and 4 by making ten.

Name _____ Date _____

1. Draw to explain 8 + 6 = 10 + 4.

2. Solve.

   a. 9 + 7 = _____ + 6

   b. _____ + 3 = 10 + 2

   c. 7 + _____ = 10 + 1

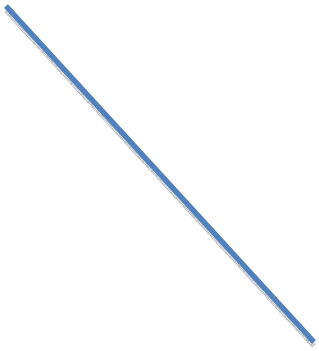
Name _____ Date _____

1. Solve the facts by recording make ten solutions with number bonds. Then draw a line connecting each one with the number sentence showing how you added the remaining ones to ten. The first one is done for you.

9 + 4 =

^

1 + 3



10 + 4

7 + 6 =

10 + 3

6 + 6 =

10 + 3

7 + 9 =

10 + 2

6 + 8 =

10 + 6

7 + 7 =

10 + 4

2. Jennifer has 9 markers at school and 6 at home. Orlando has 7 markers at school and 8 at home.
   a. How many markers does Jennifer have?

   b. How many markers does Orlando have?

3. Fill in the blank to make the sentence true.
   a. 9 + 5 = _____ + 4

   b. 4 + 8 = 10 + _____

   c. 8 + _____ = 10 + 5

   d. _____ + 5 = 10 + 2

4. Two teams are playing a baseball game. Team Tigers has 9 players on the field and 4 players on the bench. Team Lion has 9 players on the field and 7 players on the bench.
   a. How many players does Team Tiger have?

   b. How many players does Team Lion have?

5. Draw to explain how to add 7 and 6 by making ten.