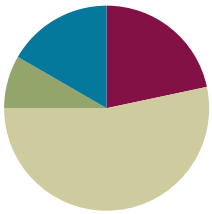
Lesson 14

Objective: Add a pair of two-digit numbers when the ones digits have a sum greater than 10 using decomposition.

Suggested Lesson Structure

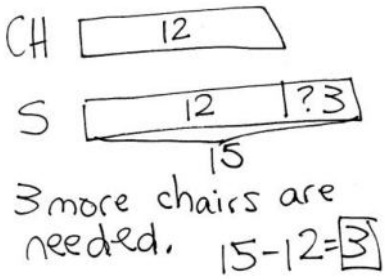


Application Problem	(5 minutes)
Fluency Practice	(13 minutes)
Concept Development	(32 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**

Application Problem (5 minutes)

There are 12 chairs at the lunch table and 15 students. How many more chairs are needed so that every student has a chair?

Note: Today's problem is a *comparison with difference unknown* problem type. Students who have struggled with comparison problems may successfully solve this common real-life problem. Before moving on to the Fluency Practice, have students briefly discuss the solution.



Fluency Practice (13 minutes)

- Core Fluency Differentiated Practice Sets **1.OA.6** (5 minutes)
- Add Tens **1.NBT.4** (3 minutes)
- Take Out Ones **1.OA.6, 1.NBT.4** (5 minutes)

Core Fluency Differentiated Practice Sets (5 minutes)

Materials: (S) Core Fluency Practice Sets (Lesson 1)

Note: Give the appropriate Practice Set to each student. Students who completed all questions correctly on their most recent Practice Set should be given the next level of difficulty. All other students should try to improve their scores on their current levels.

Students complete as many problems as they can in 90 seconds. Assign a counting pattern and start number for early finishers, or have them practice make ten addition or subtraction on the back of their papers. Collect and correct any Practice Sets completed within the allotted time.

Add Tens (3 minutes)

Materials: (S) Personal white board, die per pair of students

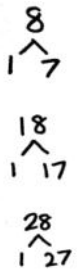
Note: This fluency activity reviews adding multiples of 10 to two-digit numbers.

- Partner A writes or draws a number (with quick tens and ones) between 10 and 40 (e.g., 25).
- Partner B rolls the die to determine the number of tens to add (e.g., if he rolls 5, add 5 tens).
- Both partners write the number sentence on their personal white boards and check each other's work (e.g., 25 + 50 = 75).

Take Out Ones (5 minutes)

Materials: (S) Personal white board

Note: Taking out some ones from a two-digit number strengthens students' ability to apply the make ten strategy when adding two two-digit numbers.



Give students a sequence of related numbers at a time, and have them write number bonds on their personal white boards. Challenge early finishers to think of additional related number bonds for each sequence. Follow the suggested sequence:

- Take out 1: 8, 18, 28; 6, 56, 86.
- Take out 2: 5, 15, 25; 7, 37, 97.
- Take out 3: 6, 36, 76; 9, 69, 99, 109.
- Take out 4: 8, 48, 88, 108; 7, 77, 107, 117.

Concept Development (32 minutes)

Materials: (T) Chart paper, document camera if available
(S) Personal white board

Begin today's lesson with students at their desks or tables with their personal white boards.

Similar to the last two days, today's lesson provides opportunities for students to practice solving two-digit addition problems.

Today, however, in each set, a string of problems is related (e.g., 56 + 21, 56 + 24, and 56 + 27). For students who need additional support, the movement through the problems from simple to complex can help them choose a solution strategy.

NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:

Students may choose how they want to solve problems—with drawings, number bonds, or the arrow way. Students should begin to move away from drawing to the more abstract methods of problem solving. However, not all students are ready, so support students wherever they are in their learning, and guide them as they progress.

Challenge students who are becoming proficient at solving two-digit addition problems to identify the relationship between each problem and create other strings that would exemplify the same set of relationships. Use their problems in the class if possible.

As in Lessons 12 and 13, invite students to share their methods for solving using place value language to explain why they chose to solve using these methods.

Problems 1−6 use easier combinations of ones as they create sums in the ones place that are equal to or greater than 10.

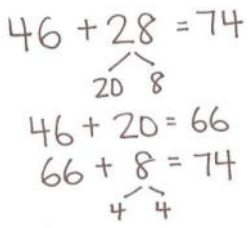
Problems 7−12 use combinations of ones that are typically more challenging for students.

Problems 1–6	**Problems 7–12**
65 + 15	56 + 28
65 + 16	46 + 28
65 + 19	38 + 56
48 + 33	37 + 57
48 + 43	37 + 47
38 + 62	45 + 37

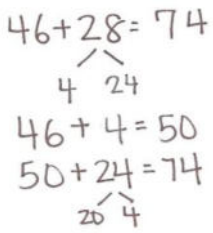
NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:

Continue to challenge students working above grade level. Change some of the expressions into number sentences with missing addends, or give students some word problems to solve with similar numbers.

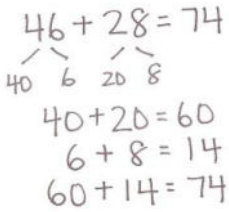
Below are some of the various methods and explanations that students might share:



I added 20 to 46 first.



I made a ten first.



I added the 4 tens to 2 tens first.

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 should solve these problems using the RDW approach used for Application Problems.

Student Debrief (10 minutes)

Lesson Objective: Add a pair of two-digit numbers when the ones digits have a sum greater than 10 using decomposition.

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

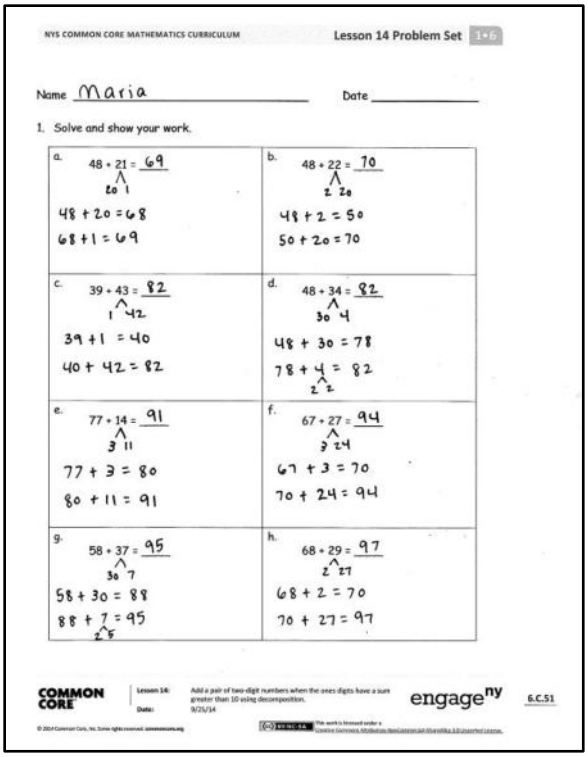
Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- Look at Problem 1 (a) and (b). How can solving Problem 1(a) help you solve Problem 1(b)?
- Look at Problem 2 (g) and (h). How are they related? How could solving one help you solve the other?
- Think about Take Out Ones in our Fluency Practice today. How did it help you when you were solving the more challenging problems?

Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to the students.



NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 14 Problem Set 1•6

Name Maria Date

1. Solve and show your work.

a. 48 + 21 = 69 (20 1)
48 + 20 = 68
68 + 1 = 69

b. 48 + 22 = 70 (2 20)
48 + 2 = 50
50 + 20 = 70

c. 39 + 43 = 82 (1 42)
39 + 1 = 40
40 + 42 = 82

d. 48 + 34 = 82 (30 4)
48 + 30 = 78
78 + 4 = 82 (2 2)

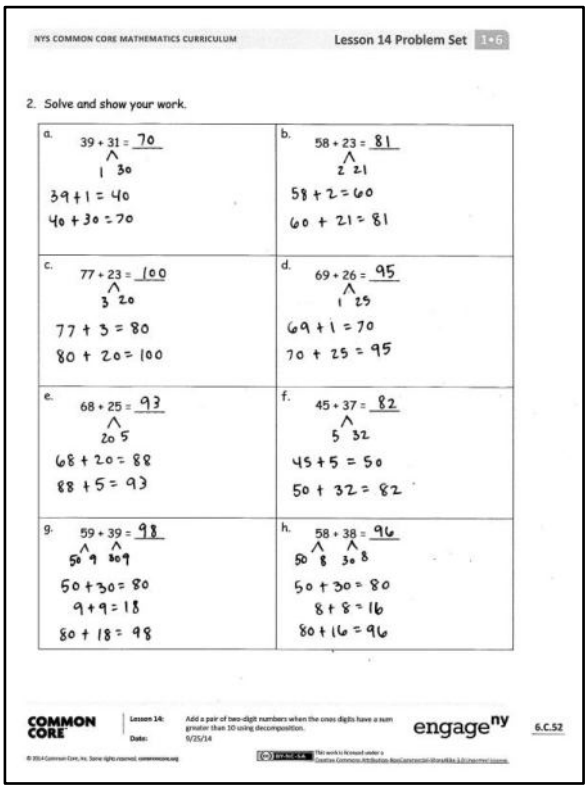
e. 77 + 14 = 91 (3 11)
77 + 3 = 80
80 + 11 = 91

f. 67 + 27 = 94 (3 24)
67 + 3 = 70
70 + 24 = 94

g. 58 + 37 = 95 (30 7)
58 + 30 = 88
88 + 7 = 95 (2 5)

h. 68 + 29 = 97 (2 27)
68 + 2 = 70
70 + 27 = 97

COMMON CORE Lesson 14: Date: Add a pair of two-digit numbers when the ones digits have a sum greater than 10 using decomposition. 9/25/14 engage^ny 6.C.51



NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 14 Problem Set 1•6

2. Solve and show your work.

a. 39 + 31 = 70 (1 30)
39 + 1 = 40
40 + 30 = 70

b. 58 + 23 = 81 (2 21)
58 + 2 = 60
60 + 21 = 81

c. 77 + 23 = 100 (3 20)
77 + 3 = 80
80 + 20 = 100

d. 69 + 26 = 95 (1 25)
69 + 1 = 70
70 + 25 = 95

e. 68 + 25 = 93 (20 5)
68 + 20 = 88
88 + 5 = 93

f. 45 + 37 = 82 (5 32)
45 + 5 = 50
50 + 32 = 82

g. 59 + 39 = 98 (50 9 30 9)
50 + 30 = 80
9 + 9 = 18
80 + 18 = 98

h. 58 + 38 = 96 (50 8 30 8)
50 + 30 = 80
8 + 8 = 16
80 + 16 = 96

COMMON CORE Lesson 14: Date: Add a pair of two-digit numbers when the ones digits have a sum greater than 10 using decomposition. 9/25/14 engage^ny 6.C.52

Name _____ Date _____

1. Solve and show your work.

a. 48 + 21 = _____	b. 48 + 22 = _____
c. 39 + 43 = _____	d. 48 + 34 = _____
e. 77 + 14 = _____	f. 67 + 27 = _____
g. 58 + 37 = _____	h. 68 + 29 = _____

2. Solve and show your work.

a. 39 + 31 = _____	b. 58 + 23 = _____
c. 77 + 23 = _____	d. 69 + 26 = _____
e. 68 + 25 = _____	f. 45 + 37 = _____
g. 59 + 39 = _____	h. 58 + 38 = _____

Name _____ Date _____

Solve and show your work.

a. 47 + 42 = ____	b. 78 + 22 = ____
c. 56 + 38 = ____	

Name _____ Date _____

1. Solve and show your work.

a. 68 + 21 = _____	b. 59 + 32 = _____
c. 39 + 44 = _____	d. 58 + 36 = _____
e. 76 + 17 = _____	f. 68 + 26 = _____
g. 56 + 39 = _____	h. 58 + 29 = _____

2. Solve and show your work.

a. 39 + 41 = _____	b. 48 + 43 = _____
c. 87 + 13 = _____	d. 59 + 25 = _____
e. 65 + 27 = _____	f. 27 + 67 = _____
g. 49 + 39 = _____	h. 38 + 58 = _____