

Answer Key

Domain 1

Lesson 1

- 34
- 75
- 50
- $24 + 8 = \mathbf{32}$; $\mathbf{32} + 20 = \mathbf{52}$
- MP4** $22 + 30 = \square$, $22 + 30 = 52$;
 $52 + 6 = \square$, $52 + 6 = 58$;
Lauren has 58 stamps in all.

Lesson 2

- 40
- 53
- 15
- $27 + 30 = \mathbf{57}$; $\mathbf{57} - 20 = \mathbf{37}$
- MP4** $72 - 30 = \square$, $72 - 30 = 42$;
 $42 + 6 = \square$, $42 + 6 = 48$;
Alex has 48 marbles in all.

Lesson 3

- 12
- 14
- 5
- 8
- 13
- 7
- 9
- 11
- 16
- 15
- 17
- 11
- 2

14. 6

15. 7

16. 3

17. 0

18. 9

19. 9

20. 5

21. 5

22. 8

23. 8

24. 9

25. 8

26. 6

27. **MP6** Answers may vary. Possible answer: addition fact: $8 + 6 = 14$; related subtraction fact: $14 - 6 = 8$. Possible explanation: I notice that the related addition and subtraction facts use the same numbers.

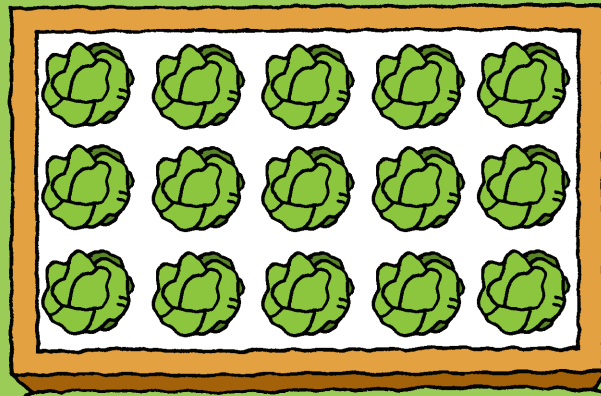
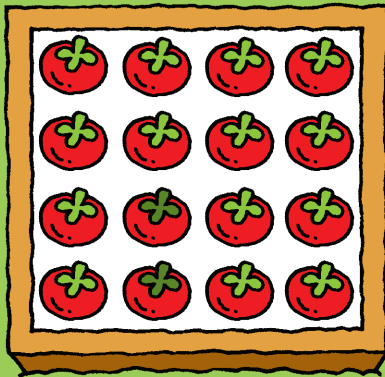
Lesson 4

- 8; even
- 13; odd
- 25; odd
- 5; 5
- 4; 4
- 9; 9
- 7; 7
- the first group
- MP4** Children can use counters or other objects, or they can make a drawing to show that 22 can be shown as two equal groups of 11. Equation: $22 = \mathbf{11} + \mathbf{11}$

Domain 1

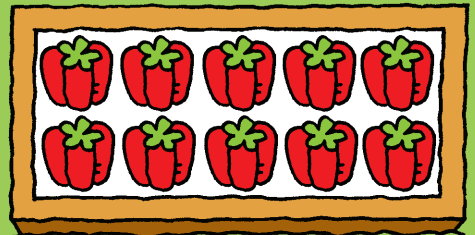
Operations and Algebraic Thinking

Tomatoes

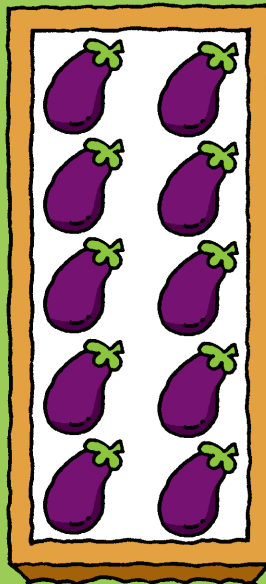


Cabbage

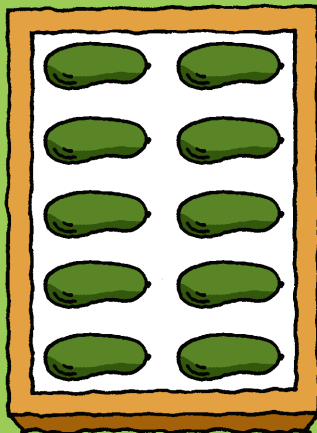
Peppers



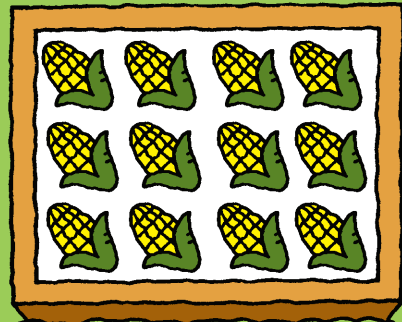
Eggplant



Zucchini



Corn



How many more tomatoes than peppers are in the garden?

Lesson

1

Problem Solving: Addition

Learning Objective

- Children will use addition to solve one- and two-step word problems with unknowns in all positions.

Vocabulary

add
addends
sum
equation

Common Core State 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.

Materials

- counters
- place-value blocks (optional)
- Fluency Practice, page A2
- Fluency Practice, page A3

Before the Lesson

In Grade 1, children have learned to use addition within 20 to solve one-step word problems (1.OA.1). In Grade 2, they will use addition within 100 to solve one- and two-step word problems.

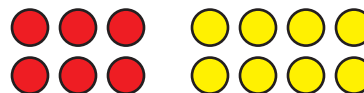
Tell children the following story: *Tyrone bought 6 red peppers and 8 green peppers. How many peppers did he buy in all?*

Ask: *What can you do to find how many peppers he bought in all? You can count all the peppers.* Say: *When you find how many in all, you are adding. Counting can help you add.*

Use 6 red counters and 8 yellow counters. Show a red counter. Say: *Let's use red counters to show the number of red peppers Tyrone bought.* Ask: *How many red peppers did he buy? 6 How many red counters should we use for the red peppers? 6* Display 6 red counters.

Show a yellow counter. Say: *Let's use yellow counters to show the number of green peppers Tyrone bought.* Ask: *How many green peppers did he buy? 8 How many yellow counters should you use*


for the green peppers? 8 Place 8 yellow counters to the right of the red ones with a space between the red and yellow ones.



Ask: *How can we find how many there are in all? Put them together and count.* Have children count to find the sum. Ask: *How many peppers are there in all? 14*

Say: *An addition sentence shows what happens when we add two numbers.* Write the parts of the addition sentence $6 + 8 = 14$ on the board as you say the following: *The addition sentence begins with the number of red peppers Tyrone bought. Then a plus sign shows that you will add the number of green peppers Tyrone bought.* Ask: *How many green peppers did Tyrone buy? 8* Say: *So we need to write 8. Next we need to write an equal sign.* Ask: *What does the equal sign mean? Whatever is on one side of the sign has the same value as what is*

on the other side of the sign. How many peppers are there in all? 14 Say: So we need to write 14. We read this sentence as six plus eight equals fourteen.

 You might want to use Fluency Practice pages A2 and A3 to help children review addition for sums to 10.

Teaching the Lesson

This lesson has children use addition to solve one- and two-step word problems involving situations with unknowns in all positions. Children use drawings and equations with a symbol for the unknown to represent and solve the problems. Have the children turn to page 6.

Example 1

This example shows children how to solve a problem using addition. The problem asks children to find the sum, or how many in all.

Ask: *What does the problem ask you to find? The number of marbles in all* You may wish to have children use counters to model the problem. Ask: *How many marbles does Melanie have? 7 How many marbles does Diego have? 12 How can we find how many marbles there are in all? Add 7 and 12.*

Ask: *How many marbles are in the bag? 19* You may wish to ask a child to count the number of counters to confirm the answer. Have the children trace over the dotted 19 in the box. Direct children's attention to the statement below. Have them fill in the answer.

Melanie and Diego have **19** marbles in all.

Example 2

This example has children use place-value models to solve a word problem that involves adding a multiple of 10 to a 2-digit number.

Draw children's attention to the equation. Ask: *What does the shaded box stand for? The number of buttons that Yuri has now*

Ask: *How many buttons does Yuri have at the start of the problem? 35* Have children look at the place-value models that show 35. Ask: *How many tens are in 35? 3 How many ones? 5*

Say: *Look at the bag.* Ask: *What has been spilled out of the bag? 3 tens* Then ask: *What do the 3 tens stand for? the 30 buttons that Ann gives to Yuri*

Ask: *How can we find the number of buttons that Yuri has now? Count on 3 tens starting from 35.* Say: *Let's count on 3 tens from 35.* 35 (pause), 45, 55, 65

Ask: *Is there another way to find the number of buttons Yuri has now? Yes; add the ones and add the tens; 5 ones + 0 ones is 5 ones, 3 tens + 3 tens is 6 tens, and 6 tens 5 ones is 65.* Children should trace over the dotted 65 in the box. Direct children's attention to the statement below. Have them fill in the answer.

Yuri now has **65** buttons.

Common Error Watch for children who count on three ones from 35 by saying, 35, 36, 37, 38 instead of counting on three tens by saying 35, 45, 55, 65.

Example 3

For this example, as for Example 2, children can add on tens in order to solve the word problem.

Ask: *What does the problem tell us? Zoey has 40 more coins than Kevin has. How many coins does Kevin have? 38 What do we need to find to solve this problem? How many coins Zoey has What equation can we write to show this problem?*

$38 + 40 = \square$

Ask: *How many tens are there in 40? 4 tens* Say: *Start with the addend you know, 38, and add 1 ten.*

Ask: *What is the sum? 48 If you add another ten to 48, what is the sum? 58 After you have added 4 tens to 38, what is the sum? 78 So, what is the sum of 38 plus 40? 78* Children should trace over the dotted 78 in the box. Direct children's attention to the statement below. Have them fill in the answer.

Zoey has **78** coins.

Example 4

For this example, children find a missing addend.

Ask: *What do we need to find to solve this problem? How many stamps Kayla has What does the problem tell us? Liam has 63 stamps. What else does it tell us? Kayla and Liam have 83 stamps in all.*

Say: *Look at the drawing. The addends have been joined together to make the sum.* Ask: *Which addend do we know?* 63 *What does 63 stand for?* Liam's stamps *What is the sum?* 83 *What does 83 stand for?* The number of stamps in all *What do we need to find?* The addend that stands for the number of stamps Kayla has

Then ask: *When you start with the addend you know, 63, and add 10, what is the sum?* 73 *Does this number match the sum?* No *Add 10 more to 73. What is the sum?* 83 *Does this match the sum?* Yes *How many did we add?* 20 Children should trace over the dotted 20 in the box. Direct children's attention to the statement below. Have them fill in the answer.

Kayla has **20** stamps.

Example 5

The problem in this example requires more than one step to solve. To make this clear to children, the problem is stepped out. Read the problem with the class.

For Step 1, ask: *How can we find how many blocks Austin had at the start?* By adding 12 and 3 or by counting on three from 12 *How many blocks in all does Austin have at the start?* 15 Children should trace over the dotted 15 in the box.

For Step 2, ask: *What do we need to find?* How many blocks Austin's dad gave him *How many blocks does Austin have now?* 45 *How can we find how many blocks his dad gave him?* By adding on tens to 15 until we reach a sum of 45; then we count how many tens we had to add.

Guide children through adding 10s to get from 15 to 45. Ask: *How many blocks did Austin's dad give him?* 30 blocks Children should trace over the dotted 30 in the triangle. Finally, ask: *Austin's dad gave him how many blocks?* 30 Direct children's attention to the statement below. Have them fill in the answer.

Austin's dad gave him **30** blocks.

MP4 You might like to explore this topic further by asking children to use place-value models to display this problem. Ask: *How could you model Step 1 of this problem?* Step 1 could be modeled with 1 ten and 2 ones to stand for the 12 blue blocks and 3 ones to stand for the 3 red blocks. That's a

sum of 15 in all. Ask: *How could you model Step 2 of this problem?* Step 2 could be modeled by adding 1 ten to the 15 for a total of 25, adding another ten to the 25 for a total of 35, and adding one more ten to the 35 to reach the total of 45.

Try

Place-value blocks are used to model this problem. Children are given two addends, for which they need to find the sum.

Ask: *How many puzzle pieces does Maya have?* 27 Say: *The problem tells us that Jason has 50 more pieces than Maya.* Ask: *What do we need to find?* How many pieces Jason has *How do the models help you to solve this problem?* They help me to count on tens.

Ask: *How many tens will you count on?* 5 *Why 5 tens?* Because 50 is equal to 5 tens Say: *Let's start at 27 and count on 50.* 27 (pause) 37, 47, 57, 67, 77 Have children trace the 37 and write the other numbers they counted. Ask: *How many puzzle pieces does Jason have?* 77 Children should write 77 in the box to complete the equation $27 + 50 = \square$.

Jason has **77** puzzle pieces.

MP8 To further explore this topic, replace the numbers in this problem with other numbers. Say, for example: *Suppose Maya has 37 puzzle pieces. And suppose Jason has 60 more puzzle pieces than Maya. How many puzzle pieces does Jason have?* 97 Allow children to use place-value blocks to model the problems.

Practice

For this section, children will count on or add to find either a missing addend or a sum. As they work, check to be sure that they understand how to approach problems 4 and 5, each of which requires a two-step solution.

For answers, see page 168.

SOLVE MP4 For problem 5, children are asked to write and solve an equation to determine how many stamps Lauren has in all. After children write the equation to describe the situation, you may wish to ask them to use place-value models to explain how they solved the problem.