Unit 2

Adding and Subtracting Within 100

Essential Questions

- How can we solve problems about money?
- When and how do we decompose a ten?
- How can we identify the unknowns in story problems?

Unit Story: The Heroes of Pineapple Street

You can read the Unit Story with your student by visiting the Unit Story page on the Caregiver Hub.

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Unit Investigation

Lesson 1 is the Unit Investigation. Students create values for a token system based on understanding of addition to build curiosity and apply their own knowledge in a variety of ways. Use the **Caregiver Connection** to help students continue to explore the math they will see in the unit.

Caregiver Connection

Students may enjoy learning about different currencies people use — coin names or values. Encourage them to find similarities and differences between the coins and their values.

Summary | Lesson 2

Pennies, **nickels**, and **dimes** have their own values and characteristics. You can find the total value of a group of the same type of coins by counting by their value.

1 2 3 4 5 6 7 8 9 10

10¢

5 10

10¢

10

10¢

Try This

For Problems 1–3, use the coins shown.

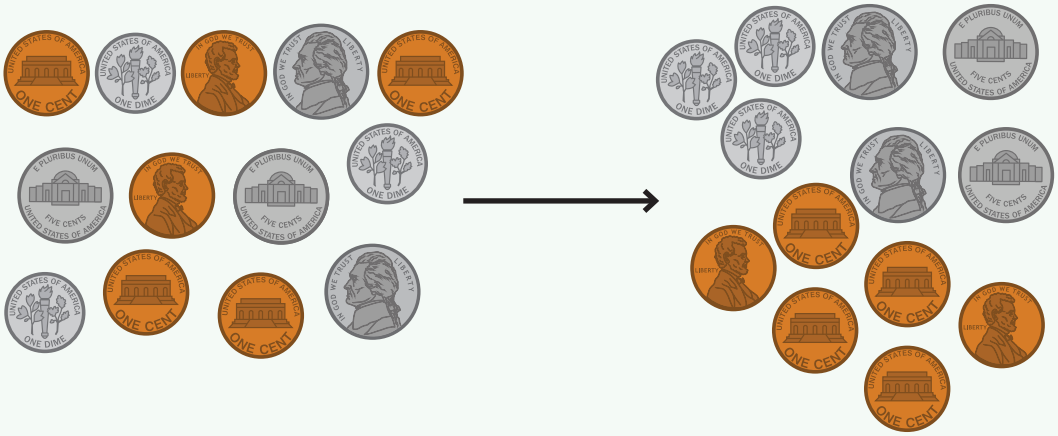
1 Which coins are shown in the picture? _____

2 What is the value of 1 coin? _____ ¢

3 What is the total value of the coins? _____ ¢

Summary | Lesson 3

When finding the value of a mixed group of coins, you can organize the same types of coins and then add or count on.



3 dimes = 30¢ 4 nickels = 20¢ 6 pennies = 6¢

30 + 20 = 50 50 + 6 = 56

Try This

1 Find the total value of 2 pennies, 5 dimes, and 3 nickels.

Show or explain your thinking.

total value: _____

Summary | Lesson 4

Quarters are silver-colored coins that are larger than dimes and nickels. Each quarter has a value of 25 cents. When finding the value of a group of mixed coins including quarters, you can use different addition strategies.

Quarter

- 1 quarter is equal to 25¢ or 25 cents.
- 2 quarters are equal to 50¢.
- 3 quarters are equal to 75¢.
- 4 quarters are equal to 100¢ or $1.

Try This

1 Find the total value of the coins.

Show or explain your thinking.

total value: _____

Summary | Lesson 5

A **dollar** is a unit of money that is equal to 100 cents. You can make a dollar and other values using different combinations of coins.

$$\$1 = 100¢$$

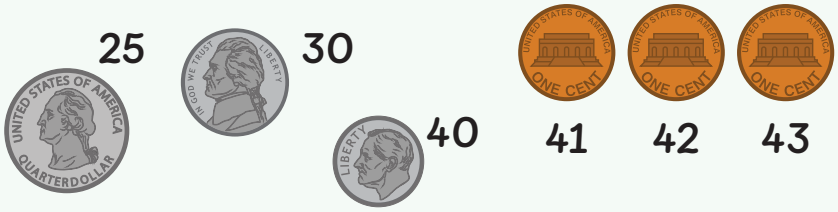
Try This

1 Circle **2** groups of coins that have a value of $1.

Summary | Lesson 6

You can use what you know about addition and money to solve real-world story problems.

Kyle found these coins in his room. How much money did he find?



25 + 5 = 30
30 + 10 = 40
40 + 3 = 43
43¢

Try This

1 Val has 2 quarters, 3 pennies, and 2 dimes. How much money does she have?

Show your thinking.

Val has _____.

Sub-Unit 1 | Summary

In this sub-unit . . .

- We discovered the values of **pennies**, **nickels**, **dimes**, and **quarters**. We made combinations of these coins to make a **dollar** and other amounts.

=

25 + 25 + 25 = 75	3 quarters
75 + 10 = 85	1 dime
85 + 10 = 95	2 nickels
95 + 5 = 100	5 pennies

- We saw that we can organize like coins and add or skip count to find the total value of a mixed group of pennies, nickels, dimes, and quarters.

4 nickels = 20¢ 3 dimes = 30¢ 6 pennies = 6¢

20 + 30 = 50 50 + 6 = 56 56¢

Math tip: You can organize a mixed group of coins in a way that prepares you to find the total value.

- We noticed addition strategies can be used to solve story problems involving money.

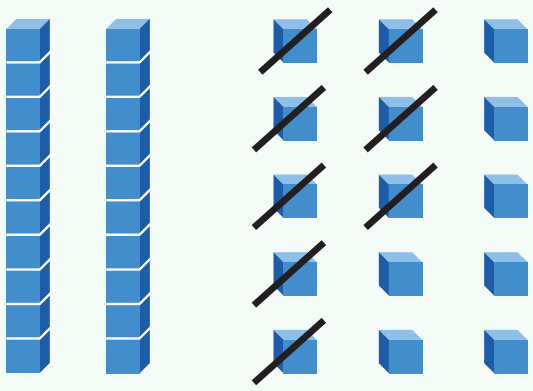
Kyle has **2 nickels, 3 dimes, 1 quarter,** and **3 pennies.** How much money does he have to spend?

1 quarter	25 + 30 = 55
3 dimes	55 + 10 = 65
2 nickels	65 + 3 = 68
3 pennies	68¢

Summary | Lesson 7

There are different ways to represent subtraction.

$$35 - 8$$



Try This

1 Find the difference.

Show your thinking.

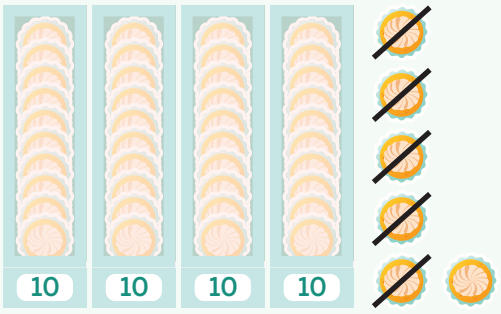
45 – 3

answer: _____

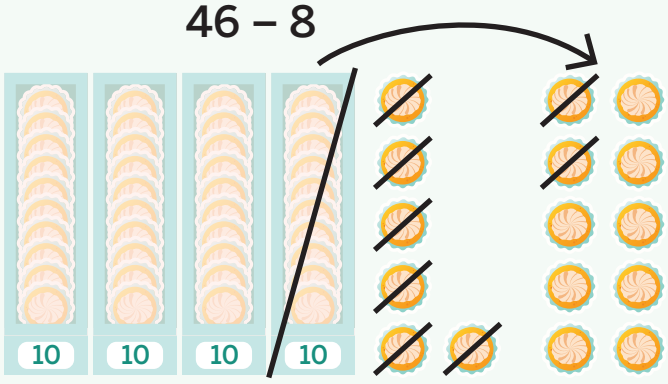
Summary | Lesson 8

When subtracting by place, you need to **decompose** a ten to make 10 ones if the amount of ones you are taking away is greater than the amount of ones you have.

46 – 5



46 – 8



Try This

1 Circle **2** expressions that would require decomposing a ten to find the difference.

39 – 2

75 – 4

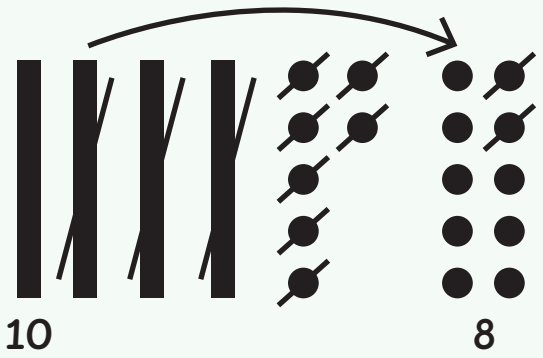
25 – 7

81 – 6

Summary | Lesson 9

You can use different strategies to subtract two-digit numbers from two-digit numbers. Sometimes, you need to decompose a ten.

47 – 29



29 + 1 = 30
30 + 10 = 40
40 + 7 = 47
1 + 10 + 7 = 18

Try This

1 Find the difference.

Show your thinking.

84 – 23

answer: _____

Summary | Lesson 10

When subtracting by place, you can subtract the tens first or the ones first. You can represent your choice with equations.

$$82 - 26$$

$$82 - 20 = 62$$
$$62 - 6 = 56$$

$$82 - 6 = 76$$
$$76 - 20 = 56$$

Try This

1 Find the difference.

Show your thinking.

66 – 49

answer: _____

Summary | Lesson 11

Using what you notice about the numbers in a subtraction problem, such as the distance between numbers, can help you choose a strategy to solve.

62 – 45	93 – 91	72 – 19
62 = 50 + 12 50 – 40 = 10 12 – 5 = 7 10 + 7 = 17	91 + 2 = 93	72 – 20 = 52 52 + 1 = 53

Try This

1 Find the difference.

Show your thinking.

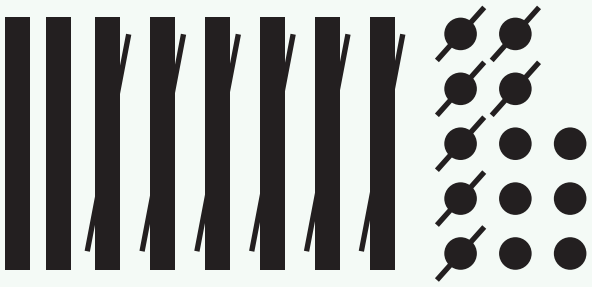
91 – 79

answer: _____

Summary | Lesson 12

There are many different strategies and representations that can be used to add and subtract within 100.

$$67 + \underline{26} = 93$$
$$93 - 67 = \underline{26}$$



$67 + 3 = 70$
$70 + 20 = 90$
$90 + 3 = 93$

$3 + 20 + 3 = 26$

$93 - 63 = 30$
$30 - 4 = 26$

Try This

Find the number that makes the equation true.

Show your thinking.

1 ___ + 57 = 92

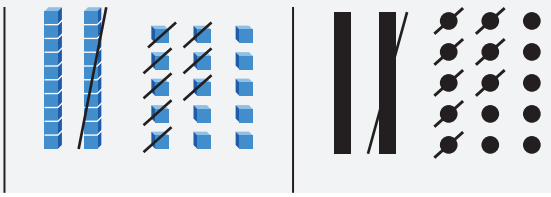
answer: _____

In this sub-unit . . .

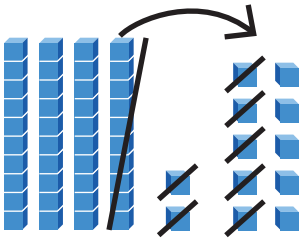
- We solved subtraction problems and represented our thinking in different ways.

35 − 18

35 = 20 + 15
15 − 8 = 7
20 − 10 = 10
10 + 7 = 17



- We noticed that, when subtracting by place, we sometimes need to **decompose**, or break apart, a ten.



42 = 30 + 12
12 − 7 = 5
30 + 5 = 35

Math tip: You can decompose a ten before you subtract or while you are subtracting.

- We saw there are many different strategies for subtraction.

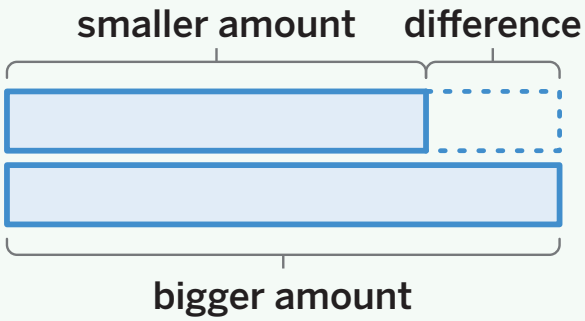
77 − 68

68 + 2 = 70 70 + 7 = 77 2 + 7 = 9	77 = 60 + 17 60 − 60 = 0 17 − 8 = 9	77 − 70 = 7 7 + 2 = 9

Math tip: You can use what you notice about the numbers in the problem to decide which strategy to use.

Summary | Lesson 13

The unknown amount in story problems about comparing can be the difference, the bigger amount, or the smaller amount.



Try This

Solve the story problem. Write an equation that represents the story problem and underline the answer.

Show your thinking.

1 On Monday, a restaurant served 86 customers for lunch. On Tuesday, it served 18 fewer customers. How many customers did the restaurant serve on Tuesday?

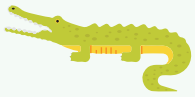
answer: _____ **equation:** _____

Summary | Lesson 14

The word *fewer* is found in many story problems. In some of these problems, the bigger amount is unknown, and in other problems, the smaller amount is unknown.

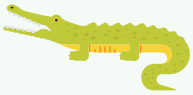
There are 65 sea lions.
There are 23 fewer sea lions than reptiles.

65
23 fewer



65 + 23 = 88

There are 88 reptiles.
There are 23 fewer sea lions than reptiles.



88

23 fewer
88 − 23 = 65

Try This

Solve the story problem. Write an equation that represents the story problem and underline the answer.

Show your thinking.

1 39 fewer people attended the carnival on Monday than on Tuesday. 52 people attended the carnival on Monday. How many people attended the carnival on Tuesday?

answer: _____ **equation:** _____

Summary | Lesson 15

The word *more* is found in many story problems. In some story problems, the bigger amount is unknown, and in others, the smaller amount is unknown.

There were 44 plants planted in April. There were 29 more plants planted in May than in April.

44

29 more

44 + 29 = 73

There were 73 plants planted in May. There were 29 more plants planted in May than in April.

73

29 more

73 − 29 = 44

Try This

Solve the story problem. Write an equation that represents the story problem and underline the answer.

Show your thinking.

1 The students at Pineapple Street Elementary voted on where to go for their end-of-year celebration. 81 students voted for the park. 25 more students voted for the park than for the aquarium. How many students voted for the aquarium?

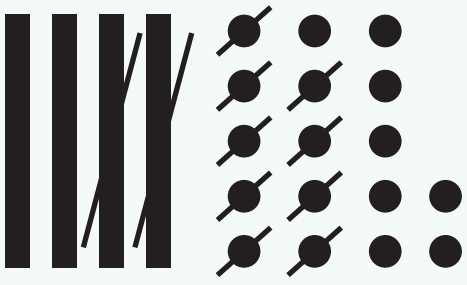
answer: _____ **equation:** _____

Summary | Lesson 16

It is important to think about all the information in a story problem. Then you can solve the problem in a way that makes sense to you.

On Saturday 57 people volunteered at the block party. 29 more people volunteered on Saturday than Sunday. How many people volunteered on Sunday?

$$57 - 7 = 50$$
$$50 - 20 = 30$$
$$30 - 2 = \underline{28}$$



Try This

Solve the story problem. Write an equation that represents the story problem and underline the answer.

Show your thinking.

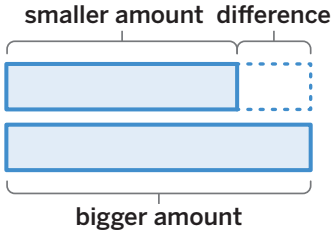
1 Han's family is comparing tickets for theme parks. It costs $24 more to go to Fun Land than to Adventure City. Fun Land's ticket costs $97. How much does a ticket for Adventure City cost?

answer: _____ **equation:** _____

Sub-Unit 3 | Summary

In this sub-unit . . .

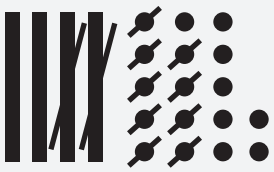
- We saw the unknown in story problems about comparing can be the difference, the bigger amount, or the smaller amount.



- We made sense of story problems by asking questions, such as:
  - In your own words, what is the story about?
  - What are the known amounts?
  - What are the unknown amounts?
  - What is the relationship between the amounts?

- We realized that we need to carefully consider all information to solve story problems.

On Saturday 57 people volunteered at the block party. 29 more people volunteered on Saturday than Sunday. How many people volunteered on Sunday?



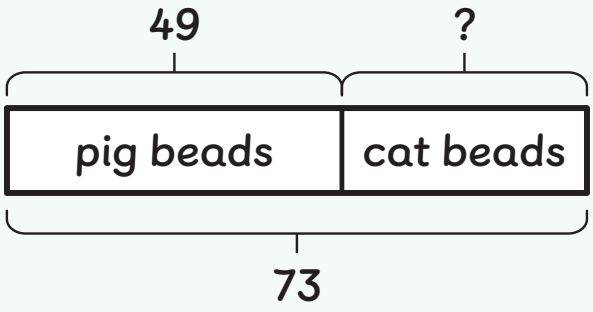
answer: 28 people **equation:** 57 − 29 = 28

Math tip: The same words can be used in story problems with different unknown amounts, so we cannot always rely on certain words to solve.

Summary | Lesson 17

Tape diagrams can be used to make sense of story problems about parts and a total before choosing a strategy to solve.

Jo's bracelet has 49 pig beads and the rest are cat beads. There are 73 beads in all. How many cat beads are on Jo's bracelet?



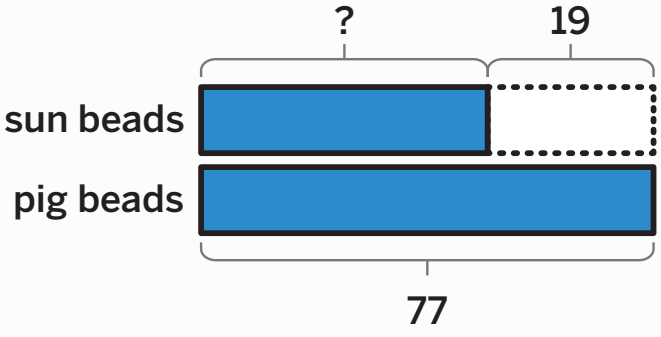
49 + ? = 73
73 – 49 = ?

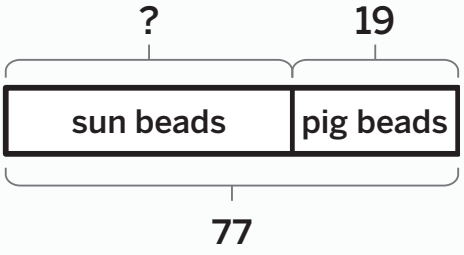
74 – 50 = 24 cat beads

Try This

1 Circle **1** tape diagram and **1** equation that represents the story problem.

Val has 77 beads on a bracelet. Some beads are sun beads and 19 beads are pig beads. How many sun beads are on Val's bracelet?





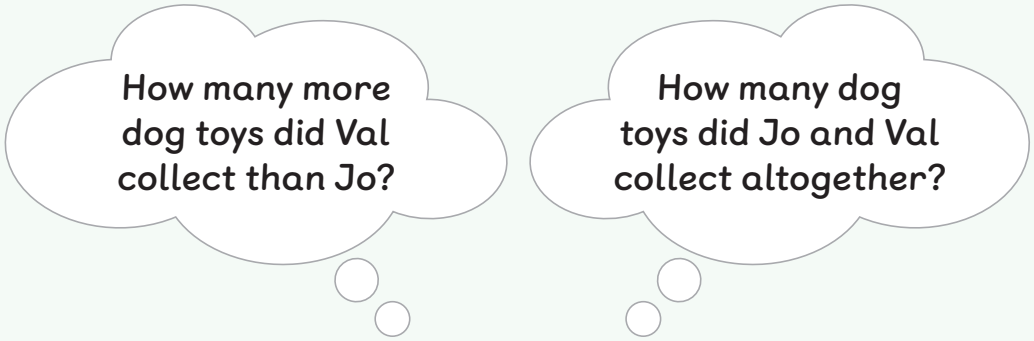
? + 19 = 77

77 + 19 = ?

Summary | Lesson 18

You can ask different questions about the same math story. Some questions can be answered using all the information from the story.

Jo collected 40 dog toys for the animal shelter. Val collected 20 dog toys for the animal shelter. The next day, Val collected 30 more dog toys for the animal shelter.



Try This

1 Find the difference.

Show your thinking.

72 – 24

answer: _____

Summary | Lesson 19

Story problems with 1 unknown are one-step story problems.
Story problems with 2 unknowns are two-step story problems.

Kyle put 20 eggs in a basket. He collected 3 more eggs than Val. How many eggs did they collect in all?

Kyle	**1st unknown:** Val	**2nd unknown:** Val and Kyle
		
20	Kyle collected 3 more than Val. 17 + 3 = 20	20 + 17 = **37**

Try This

1 Val collected 40 blue eggs and 35 brown eggs from hens on the farm. Val dropped some eggs. Now Val has 55 eggs. How many eggs did Val drop?

Show or explain your thinking.

answer: _____

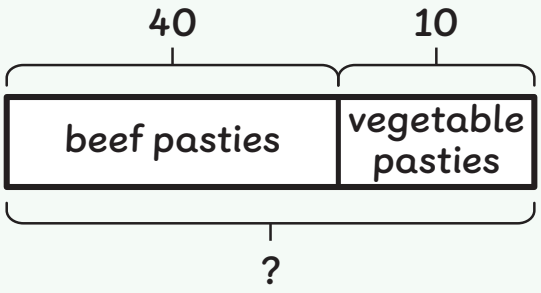
Summary | Lesson 20

Two-step story problems can have 2 different relationships between the amounts that need to be considered when finding the unknown amounts.

Jo baked 40 beef pasties and 10 vegetable pasties. Jo gave her neighbor 20 beef pasties. How many pasties does Jo have left?

Jo first baked 40 beef pasties and 10 vegetable pasties.

Then she gave her neighbor 20 beef pasties. I need to find how many pasties she has left.



$50 - 20 = 30$

Jo has 30 pasties left.

Try This

1 Priya wanted to grow a garden. She had 30 squash seeds and the same number of cucumber seeds. Diego had 25 seeds. How many more seeds did Priya have than Diego?

Show or explain your thinking.

answer: _____

Summary | Lesson 21

Two-step story problems can be solved in different ways. When you only use addition to solve, you can add numbers in any order and the sum will not change. This is called the **Commutative Property of Addition**.

Han scored 12 points playing kickball. Priya scored 32 points and Diego scored 12. How many points did they score altogether?

12 + 32 = 44	12 + 12 = 24
44 + 12 = 56	24 + 32 = 56

Try This

1 Jo made 33 blue shirts, 40 red shirts, and 27 yellow shirts for all the teachers on the last day of school. How many shirts did Jo make in total?

Show or explain your thinking.

answer: _____

Summary | Lesson 22

Two-step story problems can be represented with 1 or more equations.

> Kyle bought a granola bar for 34¢ and a banana muffin for the same price at Val's bakery. Sam spent 16¢ more at the bakery than Kyle did. How much money did Sam spend at the bakery?

$34 + 34 + 16 = \underline{84}$

one equation

or

$34 + 34 = 68$
$68 + 16 = \underline{84}$

two equations

Try This

Solve the story problem. Write 1 or more equations that represent the story problem and underline the answer.

1 Priya wants to make a gumbo soup for her family and has $100 to spend on vegetables. She spent $35 on potatoes and $15 on corn. How much money does Priya have left?

Show or explain your thinking.

answer: _____

equation(s): _____

In this sub-unit . . .

- We noticed some story problems have 1 step and some have 2 steps.

  Val collected 70 bottles of goat milk to take to her bakery. She put 20 of the bottles in crates. Then Kyle helped her put 15 more of the bottles into crates. How many bottles did Val have left to put into crates?

  Math tip: You can use what you notice about the known amounts, unknown amounts, and the relationships between the amounts in a story problem to find out if there is more than 1 step.

- We solved story problems in different ways.

20 + 15 = 35 70 − 35 = 35	70 − 20 = 50 50 − 15 = 35

answer: 35 bottles

  Math tip: You can use the relationship between the known amounts in a two-step story problem to choose the order in which you want to solve.

- We saw that two-step story problems can be represented with one or more equations.

70 − 20 − 15 = 35	70 − 20 = 50 50 − 15 = 35

answer: 35 bottles

Try This | Answer Key

Lesson 2

1. nickels
2. 5
3. 25

Lesson 3

1. Sample work:

2 pennies = 2¢
5 dimes = 50¢
3 nickels = 15¢

50 + 15 = 65
65 + 2 = 67

total value: 67¢

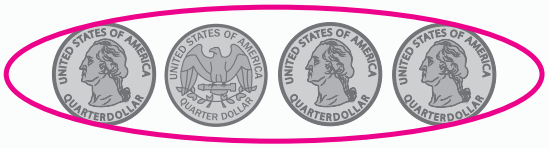
Lesson 4

1. Sample work:

total value: 86¢

Lesson 5

1.



Lesson 6

1. Sample work:

2 quarters = 50¢
2 dimes = 20¢
3 pennies = 3¢

50 + 20 + 3
50 + 20 = 70
70 + 3 = 73

Val has 73¢.

Lesson 7

1 Sample work:

answer: 42

Lesson 8

1 25 – 7 81 – 6

Lesson 9

1 Sample work:

80 – 20 = 60
4 – 3 = 1
60 + 1 = 61

answer: 61

Lesson 10

1 Sample work:

49 + 1 = 50
50 + 10 = 60
60 + 6 = 66
10 + 6 + 1 = 17

answer: 17

Lesson 11

1 Sample work:

79 + 1 = 80
80 + 10 = 90
90 + 1 = 91
10 + 1 + 1 = 12

answer: 12

Lesson 12

1 Sample work:

92 = 80 + 12
80 − 50 = 30
12 − 7 = 5
30 + 5 = 35

answer: 35

Lesson 13

1 Sample work:

answer: 68 customers
equation: Sample response: 86 − 18 = 68

Lesson 14

1 Sample work:

39 + 1 = 40
40 + 50 = 90
90 + 1 = 91

answer: 91 people
equation: Sample response: 39 + 52 = 91

Lesson 15

1 Sample work:

81 − 20 = 61
61 − 1 = 60
60 − 4 = 56

answer: 56 students
equation: Sample response: 81 − 25 = 56

Lesson 16

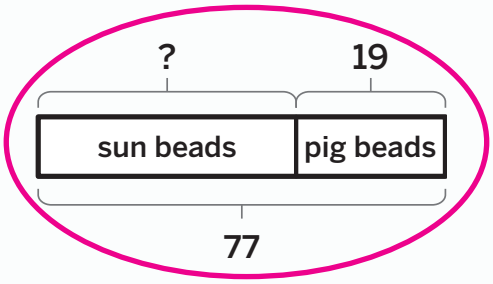
1 Sample work:

24 + 6 = 30
30 + 60 = 90
90 + 7 = 97
60 + 6 + 7 = 73

answer: $73
equation: Sample response: 24 + 73 = 97

Lesson 17

1 ? + 19 = 77



Lesson 18

1 Sample work:

24 + 6 = 30
30 + 40 = 70
70 + 2 = 72
40 + 6 + 2 = 48

answer: 48

Lesson 19

1 Sample work:

40 + 35 = _____
35 + 40 = 75

75 − _____ = 55
55 + 20 = 75

answer: 20 eggs

Lesson 20

1 Sample work:

30 + 30 – 25

60 – 25
60 – 20 = 40
40 – 5 = 35

answer: 35 seeds

Lesson 21

1 Sample work:

33 + 40 + 27

33 + 27
33 + 7 = 40
40 + 20 = 60

60 + 40 = 100

answer: 100 shirts

Lesson 22

1 Sample work:

100 – 35 – 15

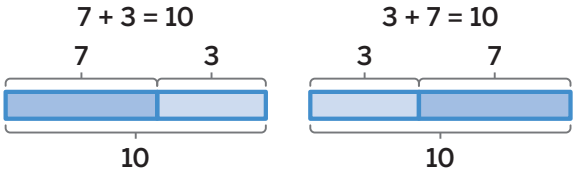
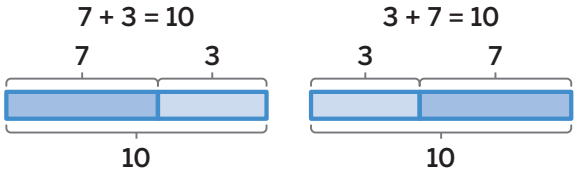
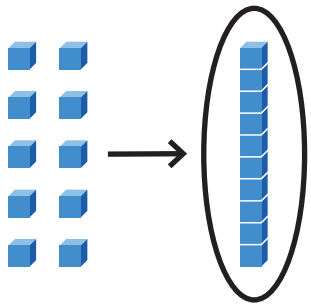
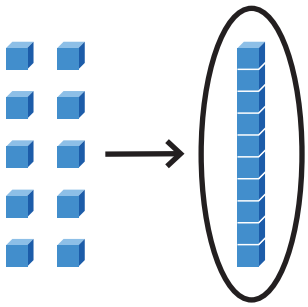
35 + 15
30 + 10 = 40
5 + 5 = 10
40 + 10 = 50

100 – 50 = 50

answer: $50

equation(s): Sample response: 100 – 35 – 15 = 50

Grade 2 Unit 2 Glossary/2.º grado Unidad 2 Glosario

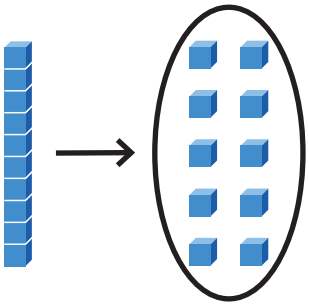
English	Español
C	
category A group of objects that are alike in some way.	**categoría** Un grupo de objetos que se parecen en algún aspecto.
cent A unit of money; 100 cents = 1 dollar. ¢	**centavo** Unidad de dinero; 100 centavos = 1 dólar. ¢
Commutative Property of Addition The order in which numbers are added does not change the sum. 	**Propiedad conmutativa de la suma** El orden en el que se suman los números no cambia la suma. 
compose Put together. 	**componer** Juntar. 
conjecture A statement that you believe is true based on current information.	**conjetura** Expresión que crees que es cierta según la información dada.

English

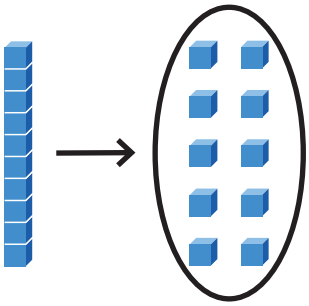
Español

D

decompose Break apart.



descomponer Separar.



difference The amount you get when you subtract one number from another.

$10 - 6 = 4$

diferencia La cantidad que obtienes cuando restas un número a otro.

$10 - 6 = 4$

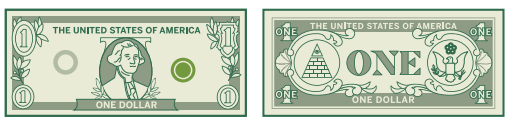
digit The symbols used to write numbers – 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.

dígito Los símbolos que se usan para escribir números: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.

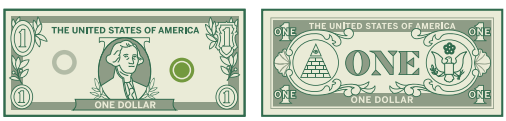
dime A coin worth 10 cents

moneda de diez centavos Una moneda que vale 10 centavos.

dollar A unit of money worth 100 cents.

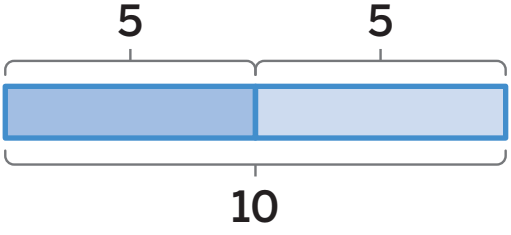
$ 

dólar Unidad de dinero que vale 100 centavos.

$ 

Grade 2 Unit 2 Glossary/2.º grado Unidad 2 Glosario

English	Español
E	
equation A statement that includes an equal sign (=). It tells us that what is on one side of the sign is equal to what is on the other side. $6 = 4 + 2$	**ecuación** Enunciado que incluye un signo igual (=). Nos indica que lo que está a un lado del signo es igual a lo que está al otro lado. $6 = 4 + 2$
estimate A guess you make about a value based on what you know.	**estimación, estimar** Suposición que haces acerca de un valor basándote en lo que sabes.
expression A statement with at least 2 numbers and at least 1 math operation (such as addition or subtraction). $6 + 4$ $3 - 3$	**expresión** Un enunciado con al menos 2 números y al menos 1 operación matemática (como suma o resta). $6 + 4$ $3 - 3$
N	
nickel A coin worth 5 cents. 	**moneda de cinco centavos** Una moneda que vale 5 centavos. 

English	Español
P	
penny A coin worth 1 cent. 	**moneda de un centavo** Una moneda que vale 1 centavo. 
Q	
quarter (coin) A coin worth 25 cents. 	**moneda de veinticinco centavos** Una moneda que vale 25 centavos. 
S	
sum The total when 2 or more numbers are added. $8 + 6 = 14$	**suma** El total cuando se suman 2 o más números. $8 + 6 = 14$
T	
tape diagram A tape diagram is a group of rectangles put together to represent a relationship between quantities. 	**diagrama de cinta** Un diagrama de cinta es un grupo de rectángulos unidos para representar una relación entre cantidades.