IMKH California

GRADE 1

Student Edition

UNITS

5 | 6

Illustrative Mathematics® LEARN MATH FOR LIFE | Kendall Hunt

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GRADE 1

UNIT

5

Adding Within 100

Content Connections

In this unit you will add within 100, using place value and properties of operations in your reasoning. You will make connections by:

- **Reasoning with Data** while collecting, representing, organizing and answering questions about two or more categories of information.
- **Exploring Changing Quantities** by adding on by place and adding units by place while adding two-digit numbers with another two-digit number.

- **Taking Wholes Apart, Putting Parts Together** while making sense of adding as it relates to composing a ten when adding ones and ones.

Addressing the Standards

As you work your way through **Unit 5 Adding within 100,** you will use some mathematical practices that you may have started using in kindergarten and have continued strengthening over your school career. These practices describe types of thinking or behaviors that you might use to solve specific math problems.

Mathematical Practices	Where You Use these MPs
MP1 Make sense of problems and persevere in solving them.	Lesson 8
MP2 Reason abstractly and quantitatively.	Lesson 4, 5, 11, 12, and 13
MP3 Construct viable arguments and critique the reasoning of others.	Lesson 1, 2, 3, 6, and 12
MP4 Model with mathematics.	Lesson 8 and 14
MP5 Use appropriate tools strategically.	Lesson 6
MP6 Attend to precision.	Lesson 1, 2, 3, 4, 6, 7, and 13

Mathematical Practices	Where You Use these MPs
MP7 Look for and make use of structure.	Lesson 1, 2, 3, 5, 6, 7, 9, 10, 11, and 12
MP8 Look for and express regularity in repeated reasoning.	Lesson 2, 5, and 7

The California Common Core State Standards for Mathematics (CA CCSSM) describe the topics you will learn in this unit. Many of these topics build upon knowledge you already have and challenge you to expand upon that knowledge. The table below shows what standards are being addressed in this unit.

Big Ideas You Are Studying	California Content Standards	Lessons Where You Learn This
• Make Sense of Data • Tens and Ones	**1.NBT.1** Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.	Lesson 1, 2, and 13

Big Ideas You Are Studying	California Content Standards	Lessons Where You Learn This
• Clocks and Times • Reasoning about Equality • Tens and Ones	**1.NBT.2** Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: a. 10 can be thought of as a bundle of ten ones—called a "ten." b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).	Lesson 1
• Reasoning about Equality • Tens and Ones	**1.NBT.3** Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.	Lesson 13

Big Ideas You Are Studying	California Content Standards	Lessons Where You Learn This
• Equal Expressions • Reasoning about Equality	**1.NBT.4** Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.	Lesson 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, and 14
• Tens and Ones	**1.NBT.5** Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.	Lesson 14

Big Ideas You Are Studying	California Content Standards	Lessons Where You Learn This
• Tens and Ones	**1.NBT.6** Subtract multiples of 10 in the range 10–90 from multiples of 10 in the range 10–90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.	Lesson 14
• Measuring with Objects • Equal Expressions	**1.OA.5** Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).	Lesson 13

Big Ideas You Are Studying	California Content Standards	Lessons Where You Learn This
• Equal Expressions • Reasoning about Equality	**1.OA.6** Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 – 4 = 13 – 3 – 1 = 10 – 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 – 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).	Lesson 6 and 13

Big Ideas You Are Studying	California Content Standards	Lessons Where You Learn This
• Equal Expressions • Reasoning about Equality	**1.OA.7** Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.	Lesson 11
• Equal Expressions	**1.OA.8** Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations* $8 + ? = 11$, $5 = \square - 3$, $6 + 6 = \square$.	Lesson 4, 10, and 13

Addressing CA CCSSM 1.NBT.1, 1.NBT.2, 1.NBT.4; building towards 1.NBT.4; practicing MP3, MP6 and MP7

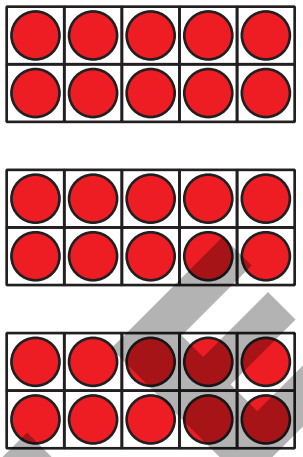
Add Tens or Ones

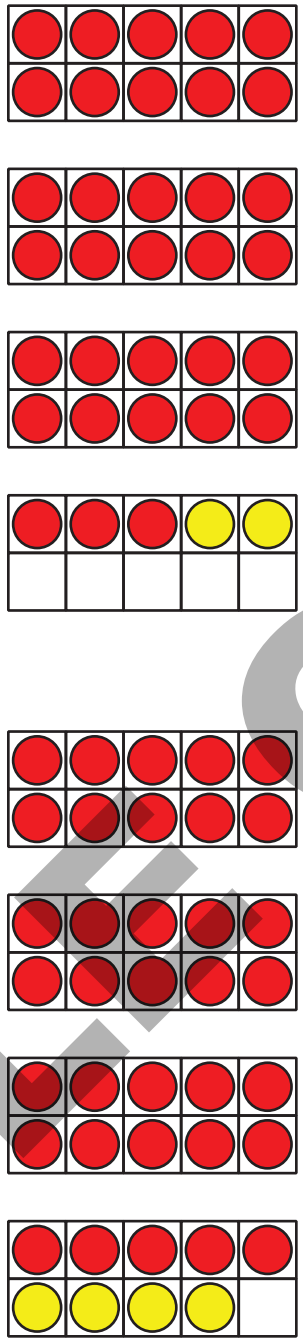
Let's add tens or ones to 2-digit numbers.

Warm-up

How Many Do You See: 10-frames

How many do you see?
How do you see them?

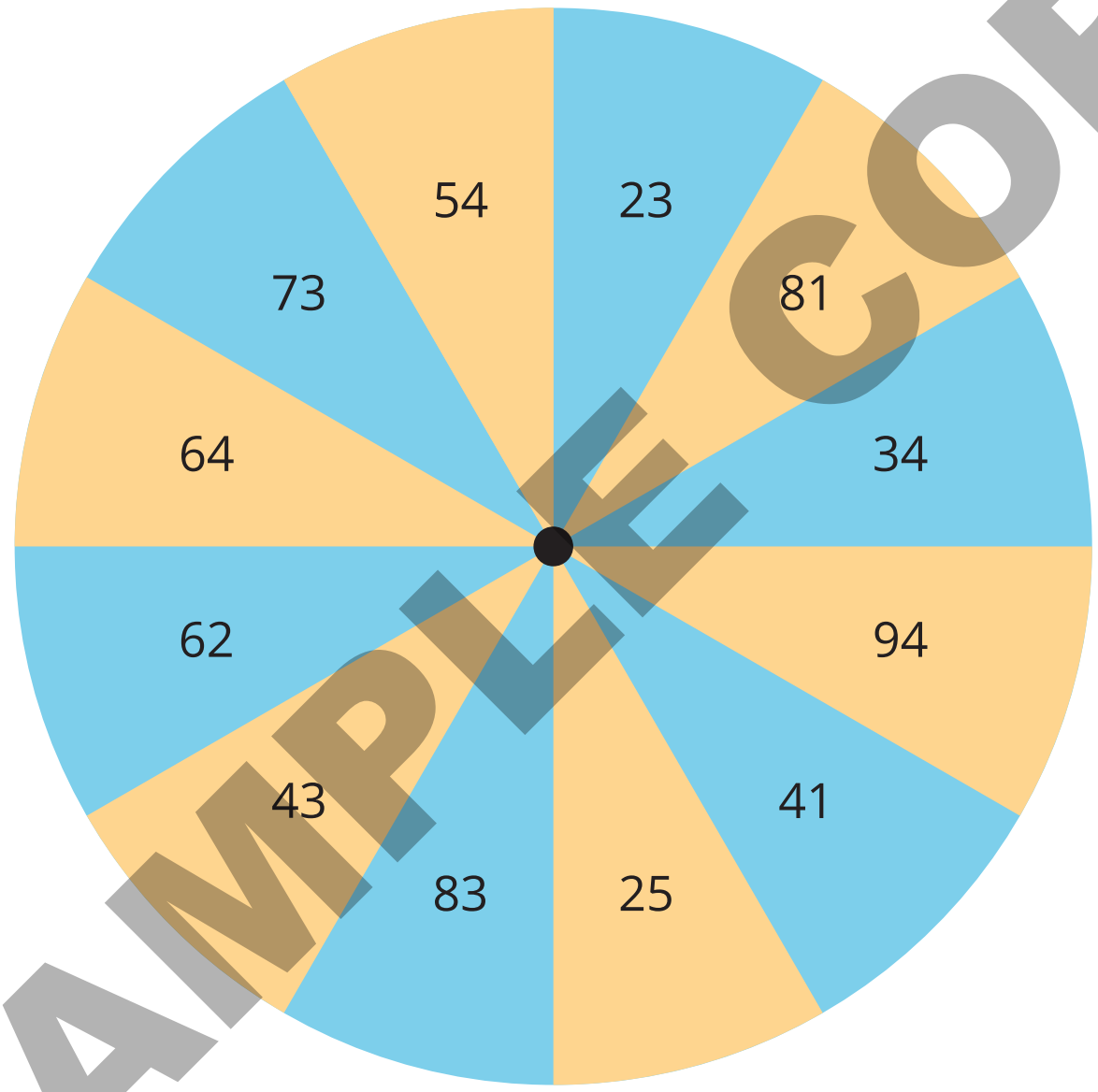




Activity 1

What Did I Add?

- Partner A: Spin to get a starting number.



- Partner B: Pick a number card without showing your partner. Choose whether to add that many ones or tens to your starting number. Make sure you don't go over 100. Tell your partner the sum.
- Partner A: Tell your partner what number you think they added and explain your thinking.
- Switch roles and repeat.

Activity 2

Add Tens or Ones

Find the number that makes each equation true.

1. a. $43 + 5 = \square$

   b. $43 + 50 = \square$

2. a. $51 + 3 = \square$

   b. $51 + 30 = \square$

3. a. $2 + 75 =$ ☐

b. $20 + 75 =$ ☐

4. $93 + 6 =$ ☐

Show your thinking using drawings, numbers, or words.

5. $60 + 28 =$ ☐

Show your thinking using drawings, numbers, or words.

6. $5 + 74 =$ ☐

Show your thinking using drawings, numbers, or words.

Addressing CA CCSSM 1.NBT.1 and 1.NBT.4; practicing MP3, MP6, MP7, and MP8

How Did You Add?

Let's add numbers and find matching equations.

Activity 1

Find the Value

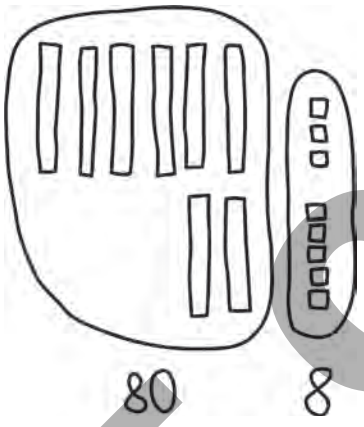
Find the value of 23 + 45.

Show your thinking using drawings, numbers, or words.

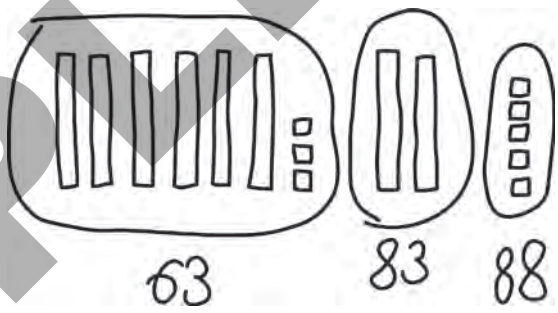
Activity 2

Elena and Andre Represent 63 + 25

1. Here are 2 drawings students made for 63 + 25.
   Elena's work



   Andre's work



   Which equations go with each drawing?

   Set A

   $63 + 20 = 83$

   $83 + 5 = 88$

   Set B

   $60 + 20 = 80$

   $3 + 5 = 8$

   $80 + 8 = 88$

Addressing CA CCSSM 1.NBT.4; practicing MP3, MP6, and MP7

Add It, Explain It

Let's add numbers and write equations to show our work.

Warm-up

Number Talk: Add More Tens

Find the value of each expression mentally.

- 13 + 21
- 13 + 31
- 23 + 31
- 33 + 41

Activity 1

Lin and Han Add

Lin and Han are both finding the value of 32 + 54.
Look at how each student started.
What should they do next to find the value?
Write equations to represent your thinking.

1. Lin started by putting 3 tens and 5 tens together.
   She recorded her first step like this: 30 + 50 = 80.

2. Han started with 54 and added 3 tens.
   He recorded his first step like this: 54 + 30 = 84.

Activity 2

I Heard You Say

Find the value of 23 + 74 using Lin's or Han's method. Show your thinking using equations.

23 + 74

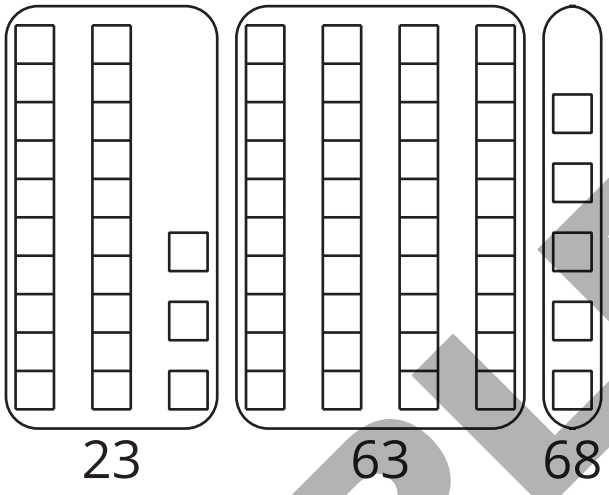
Section A Summary

We added numbers within 100.

We learned different methods to add by thinking about tens and ones and record our thinking with equations.

$$23 + 45$$

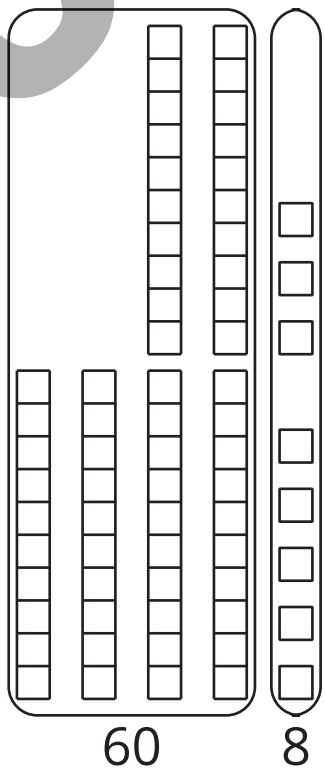
Add on tens then ones:



$23 + 40 = 63$

$63 + 5 = 68$

Add tens and tens and ones and ones:



$20 + 40 = 60$

$3 + 5 = 8$

$60 + 8 = 68$

Addressing CA CCSSM 1.NBT.4 and 1.OA.8;
building towards 1.OA.1; practicing MP2 and MP6

Center Day 1

Let's add within 100.

Warm-up

Notice and Wonder: Marbles

What do you notice?
What do you wonder?

Kiran and Priya each have some marbles.
Kiran has 14 marbles.
Priya has 23 marbles.

Activity 2

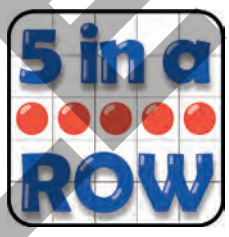
Centers: Choice Time

Choose a center.

Number Puzzles

$14 = 8 + \square$

Five in a Row



Greatest of Them All

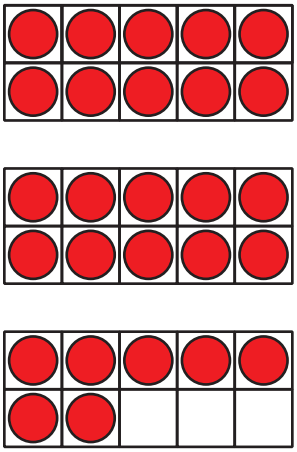
Practice Problems

8 Problems

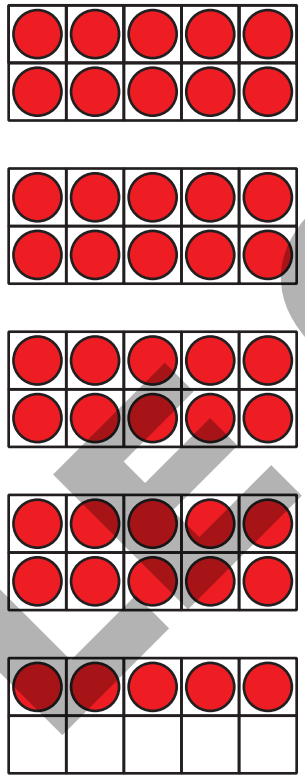
1 Pre-unit

How many do you see?

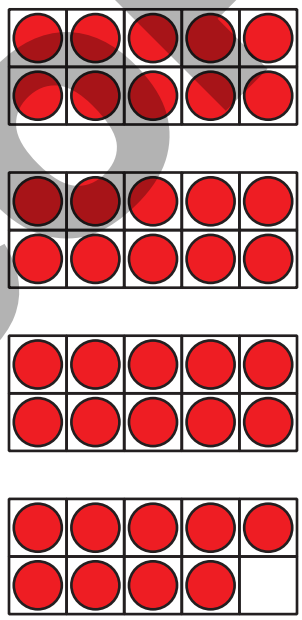
a.



b.



c.



2 Pre-unit

There are 9 ducks in the pond.
There are 7 ducks on the grass.
How many ducks are on the pond and in the grass?
Show your thinking using drawings, numbers, or words.

Find the number that makes each equation true.

a. $10 + \square = 18$

b. $17 - \square = 17$

c. $9 + 8 = \square$

d. $19 = \square + 14$

4 from Unit 5, Lesson 1

Find the value of each sum.

Show your thinking using drawings, numbers, or words.

a. $65 + 3$

b. $65 + 30$

5 from Unit 5, Lesson 2

Find the value of $31 + 24$.

Show your thinking using drawings, numbers, or words.

6 from Unit 5, Lesson 3

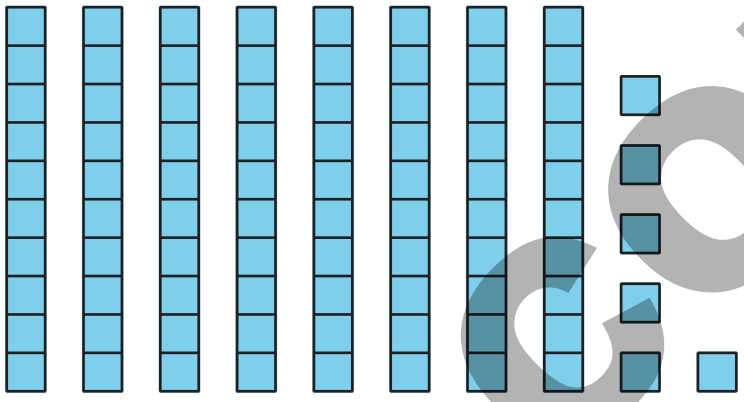
a. Find the value of 26 + 53

Show your thinking using drawings, numbers, words, or equations.

b. Can you find the value in a different way?

7 Exploration

a. Find different ways you can use 2 two-digit numbers to make 86. Use the drawing or connecting cubes, if they are helpful.



b. Can you make 86 by adding a 2-digit number to itself?

8 Exploration

Mai and Han have 75 counters.
How many counters could Mai have?
Then how many counters would Han have?
Find at least 5 different solutions.

Unit 5, Lesson 5

Addressing CA CCSSM 1.NBT.4; practicing MP2, MP7, and MP8

Make a Ten

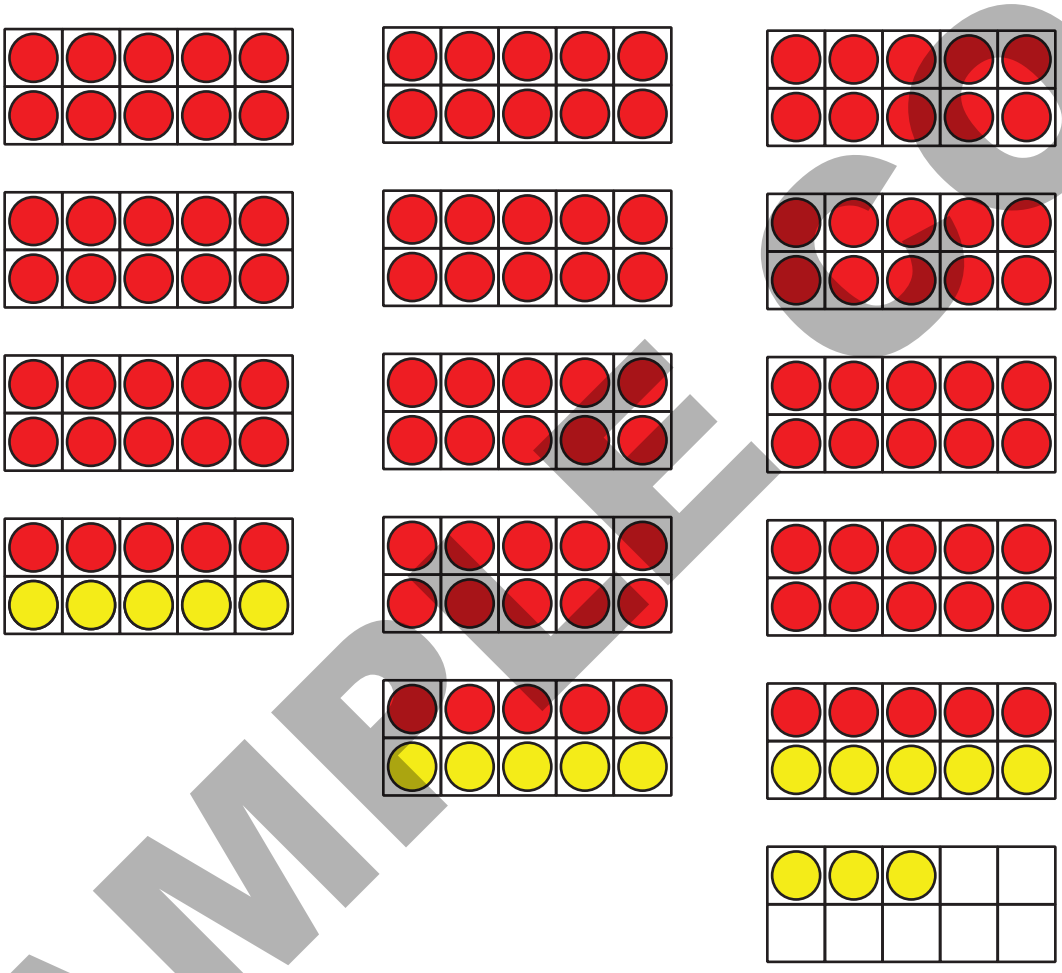
Let's add 2-digit and 1-digit numbers.

Warm-up

How Many Do You See: Many 10-frames

How many do you see?

How do you see them?



Activity 1

Choose a Way to Add

Find the value of $8 + 47$.
Show your thinking using drawings, numbers, or words.

Activity 2

Add 'Em Up Partner

Show your thinking using drawings, numbers, or words.

Practice Round:

Equation: _____

Round 1

Equation: _____

Round 2

Equation: _____

Round 3

Equation: _____

Round 4

Equation: _____

Round 5

Equation: _____

Activity 3

Tyler's Teacher

1. Tyler's teacher collected 37 dollars for the field trip.
   Then someone brought in 7 more dollars.
   How much money did Tyler's teacher collect?
   Show your thinking using drawings, numbers, or words.

2. Tyler's teacher wants to know how many students are in the classroom.
   There are 8 students sitting at tables.
   There are 26 students on the rug.
   How many students are in the classroom?
   Show your thinking using drawings, numbers, or words.

Addressing CA CCSSM 1.NBT.4 and 1.OA.6; practicing MP3, MP5, MP6, and MP7

Make a Ten and Make Sense of Equations

Let's add 1-digit and 2-digit numbers and make sense of equations.

Warm-up

Number Talk: Add within 20

Find the value of each expression mentally.

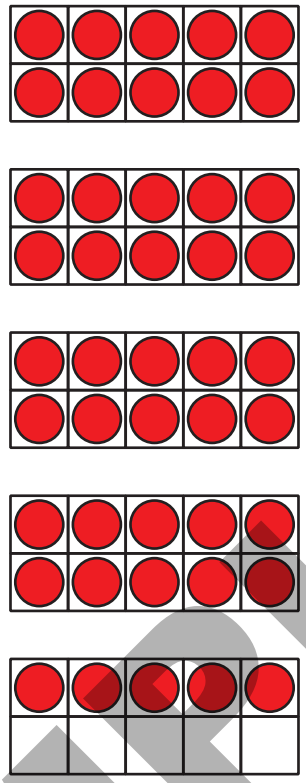
- $8 + 2$
- $8 + 5$
- $9 + 8$
- $7 + 6$

Activity 1

How Many to the Next Ten?

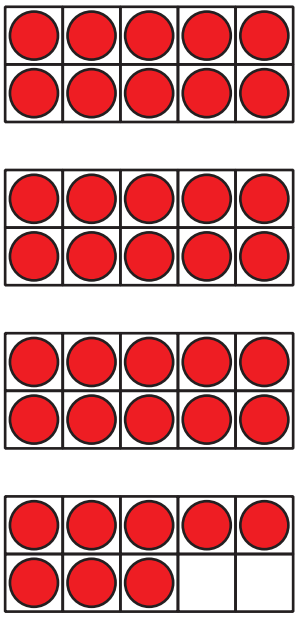
Find the number that makes each equation true.

1.



$45 + \square = 50$

2.



$38 + \square = 40$

3. $63 + \square = 70$

4. $24 + \square = 30$

5. $42 + \square = 50$

6. $57 + \square = 60$

7. $71 + \square = 80$

8. $89 + \square = 90$

9. What did you notice about the unknown number in each equation?

Activity 2

Elena and Andre Add

Elena and Andre found the value of $34 + 9$.

1. Elena started with $34 + 6 = 40$.
   What does Elena need to do next?
   Show your thinking using drawings, numbers, or words.

2. Andre started with $9 + 1 = 10$.
   What does Andre need to do next?
   Show your thinking with drawings, numbers, or words.

3. Find the value of 6 + 68.
   Show your thinking using drawings, numbers, or words.

Addressing CA CCSSM 1.NBT.4; practicing MP6, MP7, and MP8

Does It Make a New Ten?

Let's add 1-digit and 2-digit numbers and write equations.

Warm-up

Which Three Go Together: Expressions

Which 3 go together?

A

$7 + 6$

B

$22 + 6$

C

$34 + 6$

D

$44 + 8$

Activity 1

A Ten or Not a Ten?

Jada likes to look for ways to make a new ten when she adds.

Can she make a new ten when she adds to find the value of these sums?

Circle "Yes" or "No."

1. Does the expression make a new ten?

   $45 + 5$

   Yes No

   Explain how you know.

   _____

   _____

   Find the value.

   Write equations to show how you found the value of the sum.

2. Does the expression make a new ten?

$9 + 63$

Yes No

Explain how you know.

Find the value.

Write equations to show how you found the value of the sum.

3. Does the expression make a new ten?

26 + 3

Yes No

Explain how you know.

Find the value.

Write equations to show how you found the value of the sum.

4. Does the expression make a new ten?

$8 + 47$

Yes No

Explain how you know.

Find the value.

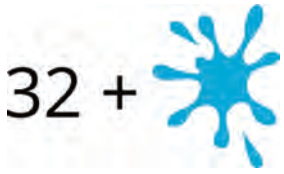
Write equations to show how you found the value of the sum.

Activity 2

Unknown Numbers

Lin's brother spilled water on her math work!
Figure out what number Lin wrote.

1. Lin wrote a 1-digit number that *can* make a new ten when you find the value of the sum.



What could Lin's number be?
Write equations to show your thinking.

2. Lin wrote a 1-digit number that *can not* make a new ten when you find the value of the sum.

What could Lin's number be?
Write equations to show your thinking.

3. Lin wrote a 2-digit number that *can* make a new ten when you find the value of the sum.

What could Lin's number be?

Write equations to show your thinking.

4. Lin wrote a 2-digit number that *can not* make a new ten when you find the value of the sum.

What could Lin's number be?

Write equations to show your thinking.

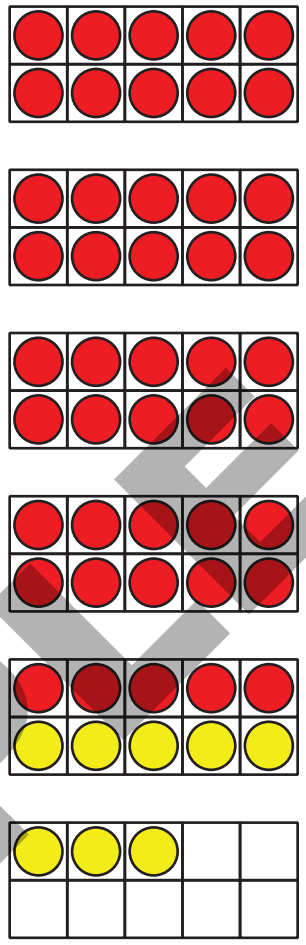
5. How do you know if you can make a new ten when you are finding the value of a sum?

Section B Summary

We added one-digit numbers and two-digit numbers.

We used different methods to add.

We learned you can think of counting on to make a new ten.

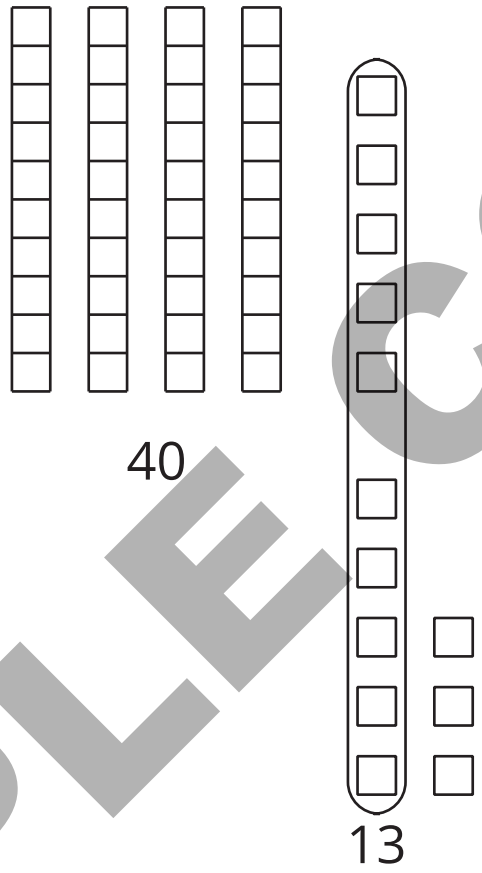


$$45 + 8$$

$$45 + 5 + 3 = \boxed{53}$$

We also saw you can think of adding all the ones and then the tens.

Sometimes when you add the ones you might be able to make a new ten.



$5 + 8 = 13$

$40 + 13 = 53$

Addressing CA CCSSM 1.NBT.4; practicing MP1 and MP4

Center Day 2

Let's add within 100.

Warm-up

Number Talk: Add within 100

Find the value of each expression mentally.

- 68 + 2
- 3 + 68
- 5 + 45
- 45 + 7

Activity 2

Centers: Choice Time

Choose a center.

Target Numbers

Number Puzzles

$14 = 8 + \square$

Five in a Row

Activity 3

Addition Stories

1. Priya watches a football game.
   The home team scores 35 points.
   Then they score 6 more points.
   How many points do they score all together?
   Show your thinking using drawings, numbers, or words.

2. At the football game, 9 fans cheer for the visiting team.
   There were 45 fans who cheer for the home team.
   How many fans are at the game all together?
   Show your thinking using drawings, numbers, or words.

Practice Problems

7 Problems

1 from Unit 5, Lesson 5

Find the value of each sum.
Show your thinking using drawings, numbers, or words.

a. $47 + 3$

b. $47 + 8$

2 from Unit 5, Lesson 6

Find the value of each sum.
Show your thinking using drawings, numbers, or words.

a. $78 + 6$

b. $6 + 78$

3 from Unit 5, Lesson 7

Find the value of each sum.

Show your thinking using drawings, numbers, or words.

a. $63 + 5$

b. $63 + 8$

c. How are the problems alike?

How are they different?

4 Exploration

Exploration

Choose 5 numbers from below to make a sum with a value greater than 50 but less than 99.

3 5 6 7 8 10 20 30 40

Use equations or drawing to show your thinking.

5 Exploration

Here is how Lin found the value of 58+ 9.
"I know 8 + 9 = 17. Then I add 5 tens and get 67."

a. Why does Lin's method work?
Show your thinking using drawings, numbers, or words.

b. Use Lin's method to find the value of 83 + 8.

6 Exploration

Noah's brother spilled water on his math work.
Help Noah figure out the unknown number.

a. The unknown number makes the value of the sum **greater** than 50. The sum has a 0 in the ones place.

What could the unknown number be?

b. The unknown number is a 2-digit number. It makes the value of the sum 75.

What could the unknown number be?

c. The unknown number is a 2-digit number.
It makes a value that is **more** than 80 but **less** than 90.

What could the unknown number be?

7 Exploration

Priya is playing the game *Target Numbers*.
Priya starts at 25. She picks these 6 cards:

1 2 3 5 6 8

She chooses to add that many tens or ones for each card.
What is the highest score she can get without going over 95?
Use equations to show your thinking.

Unit 5, Lesson 9

Addressing CA CCSSM 1.NBT.4; practicing MP7

Add 2 Two-Digit Numbers

Let's add 2-digit numbers.

Warm-up

Number Talk: Make a Ten

Find the value of each expression mentally.

- 38 + 2
- 40 + 3
- 38 + 5
- 38 + 15

Activity 1

How Did You Find the Value?

Find the value of 17 + 36.
Show your thinking using drawings, numbers, or words.

Activity 2

Grab and Add

Round 1:

Grab a handful of towers of ten and a handful of single cubes.

I have _____ cubes. My partner has _____ cubes.

How many cubes do you and your partner have altogether? Show your thinking using drawings, numbers, or words.

Round 2:

I have _____ cubes. My partner has _____ cubes.

How many cubes do you and your partner have altogether? Show your thinking using drawings, numbers, or words.

Round 3:

I have _____ cubes. My partner has _____ cubes.

How many cubes do you and your partner have altogether? Show your thinking using drawings, numbers, or words.

Round 4:

I have _____ cubes. My partner has _____ cubes.

How many cubes do you and your partner have altogether? Show your thinking using drawings, numbers, or words.

Addressing CA CCSSM 1.NBT.4 and 1.OA.8; building towards 1.NBT.4; practicing MP7

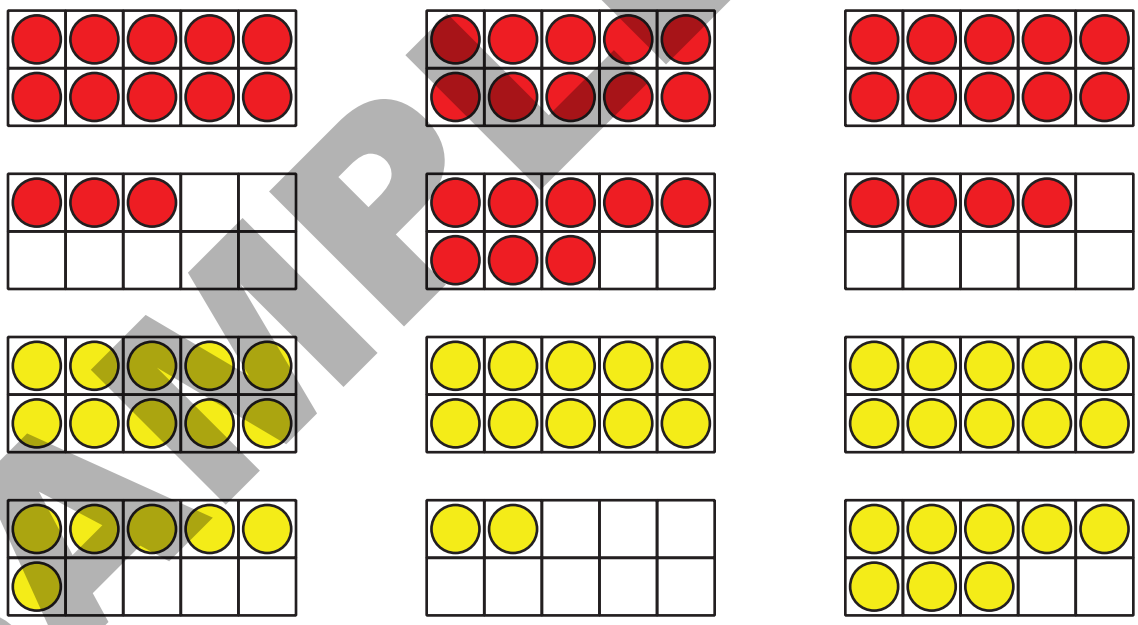
Tens and Tens, Ones and Ones

Let's add 2-digit numbers.

Warm-up

How Many Do You See: Tens and Ones

How many do you see?
How do you see them?

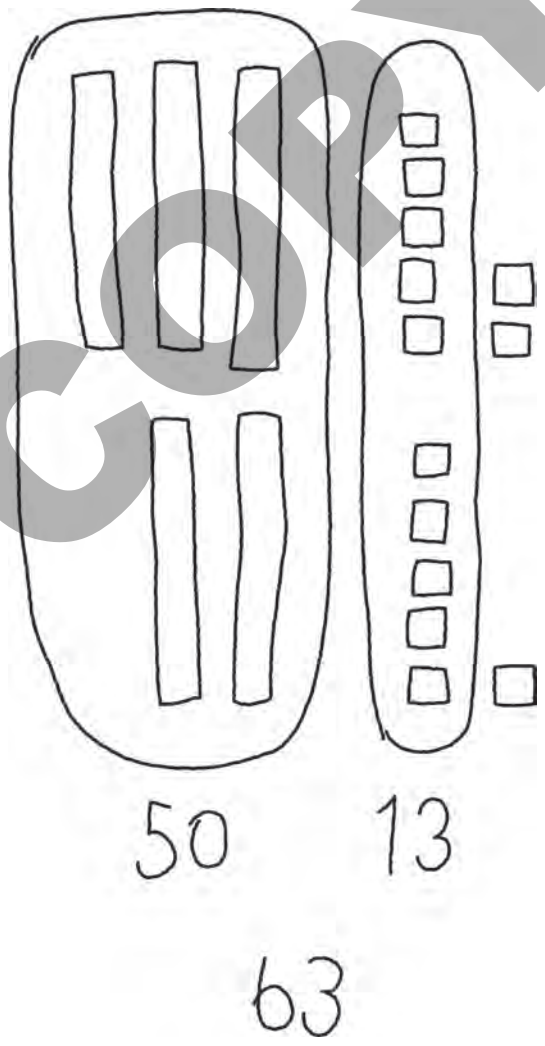


Activity 1

Priya's Work

Find the value of 37 + 26.

Priya's work



How did Priya find the value?

Activity 2

Finish the Work

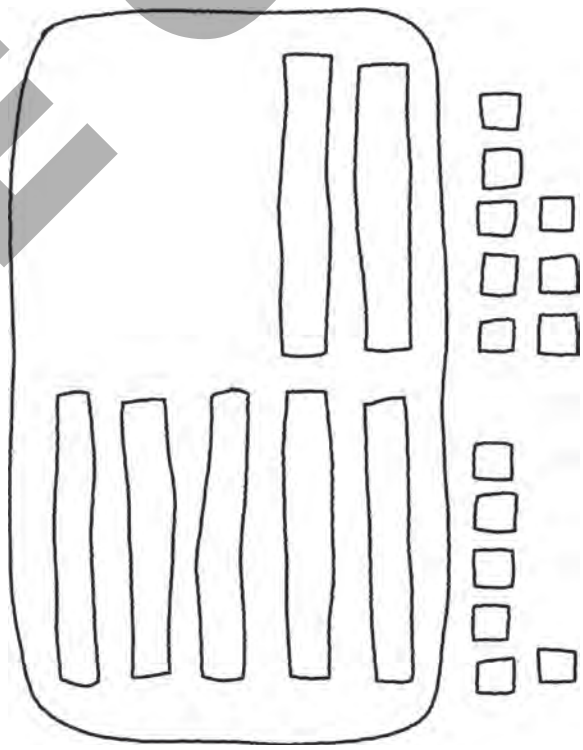
1. Each expression shows a first step to find the number that makes each equation true.

   Finish the work to find the number that makes each equation true.

   Show your thinking using drawings, numbers, or words.

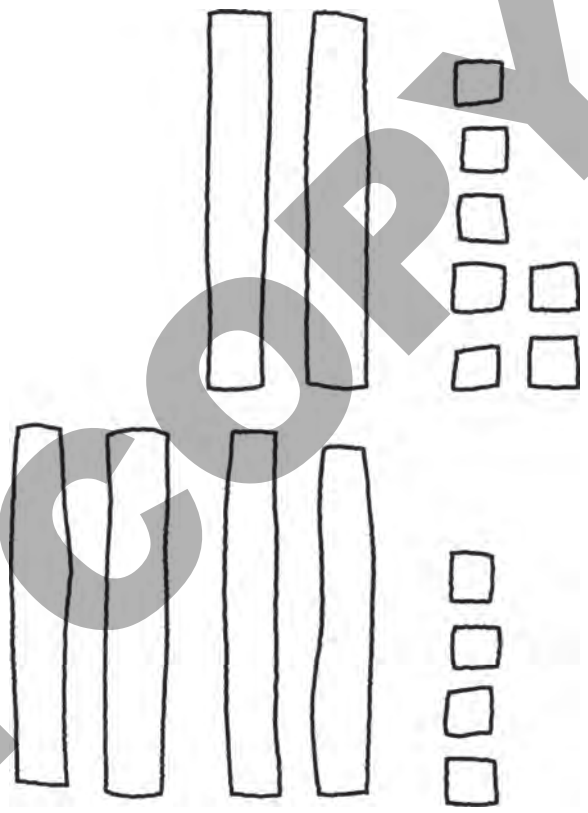
   a. $28 + 56 = \square$

   First step: $20 + 50$



b. $27 + 44 =$ ☐

First step: $7 + 4$



2. Find the value of each sum.
   Show your thinking using drawings, numbers, or words.

   a. $34 + 57$

   b. $18 + 55$

Addressing CA CCSSM 1.NBT.4 and 1.OA.7; practicing MP2 and MP7

How Did You Do That?

Let's add 2-digit numbers and make sense of equations.

Warm-up

True or False: Add to a 2-Digit Number

Decide if each statement is true or false.
Be prepared to explain your reasoning.

- $24 + 3 = 54$

- $42 + 5 = 47$

- $42 + 30 = 45$

Activity 1

How Much Litter?

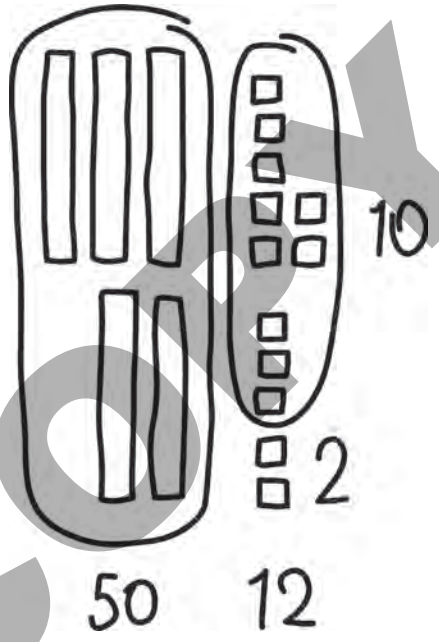
Mai and her classmates volunteer to clean up the local park. They pick up 37 plastic bottles and 25 paper wrappers. How many pieces of litter did they pick up all together?

Jada, Kiran, and Tyler find the value of $37 + 25$.

$$37 + 25$$

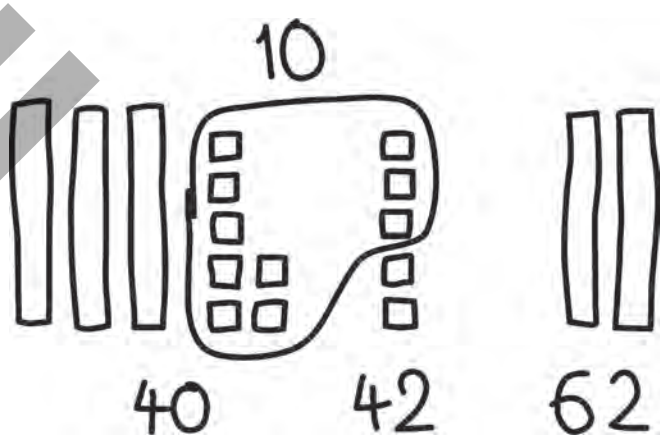
Jada's way:

$30 + 20 = 50$
$7 + 5 = 12$
$50 + 12 = 62$



Kiran's way:

$37 + 3 + 3 = 42$
$42 + 20 = 62$



Tyler's way:

$37 + 20 = 57$
$57 + 3 + 2 = 62$

Activity 2

It's Your Turn to Add

Find the value of 23 + 68.
Show your thinking using drawings, numbers, or words.

If you have time: Think about a math story this expression could represent.
Share your stories with a partner.

Addressing CA CCSSM 1.NBT.4; practicing MP2, MP3 and MP7

Add It Up

Let's add 2-digit numbers and write equations.

Warm-up

Number Talk: Make a Ten

Find the value of each expression mentally.

- 7 + 3
- 37 + 3
- 7 + 8
- 57 + 8

Activity 1

Add 2-digit Numbers Within 100

Find the value of each sum.
Show your thinking using drawings, numbers, or words.
Write equations to represent your thinking.

1. $48 + 15$

2. $57 + 36$

Activity 2

Reason about Addition

37 22 18 56 41

Write an addition expression with 2 numbers to make each statement true.

Use only the numbers above.

1. This sum has the smallest possible value.

   Expression:_____

2. This sum has the largest possible value.

   Expression:_____

3. You don't need to make a new ten to find the value of this sum.

   Expression:_____

4. If you make a new ten to find the value of this sum, you will still have some more ones.

   Expression:_____

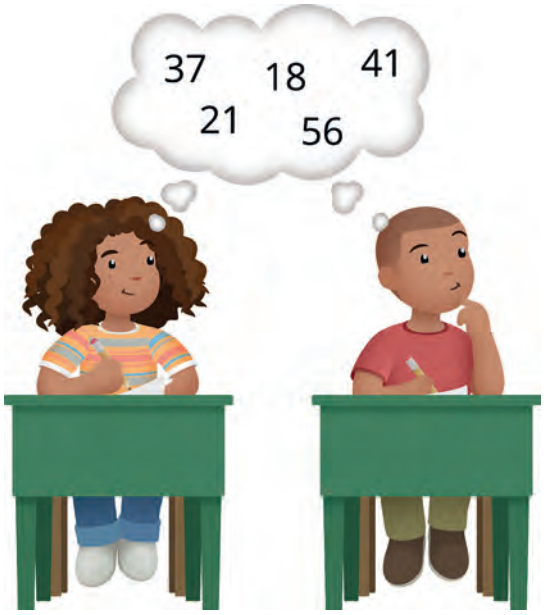
5. If you make a new ten to find the value of this sum, you will have no more ones.

   Expression:_____

If you have time: Choose 2 numbers from above.

Write an addition expression where the value is closest to 95.

How do you know the value is closest to 95?



Activity 3

Ways We Volunteer

1. Mai's school has a book drive.
   They collect 48 children's books.
   They collect 27 adult books.
   How many books do they collect all together?
   Show your thinking using drawings, numbers, or words.

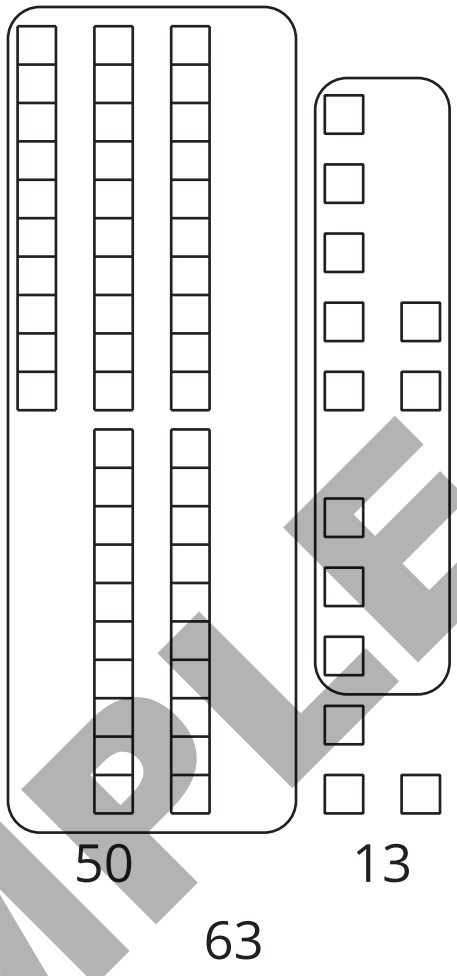
2. The community soup kitchen has lots of volunteers who help serve food.
   They have 35 volunteers during the week.
   They have 56 volunteers on the weekend.
   How many volunteers do they have all together?
   Show your thinking using drawings, numbers, or words.

3. Elena and her mother plant a community garden.
   They plant 18 strawberry plants.
   They plant 24 cucumber plants.
   How many plants did they plant all together?
   Show your thinking using drawings, numbers, or words.

Section C Summary

We learned to add any 2 two-digit numbers within 100 and write equations to represent our methods.

We added tens and tens and ones and ones.



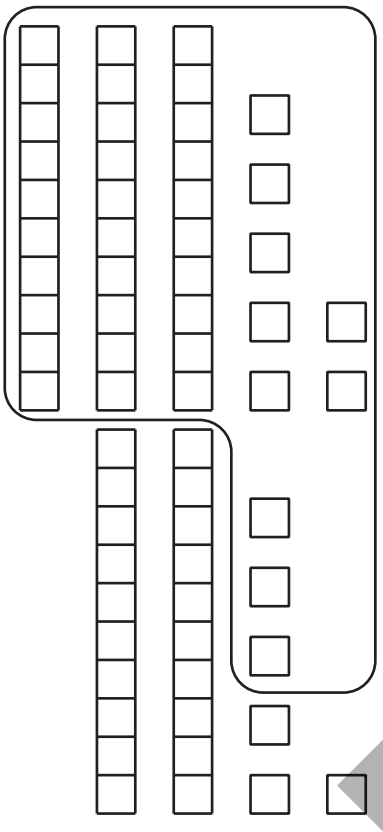
$37 + 26$

$30 + 20 = 50$

$7 + 6 = 13$

$50 + 13 = 63$

We added ones first to make a new ten.



$37 + 26$

$37 + 3 + 3 = 43$

$43 + 20 = 63$

Addressing CA CCSSM 1.NBT.1, 1.NBT.3, 1.NBT.4, 1.OA.5-6, and 1.OA.8; practicing MP2 and MP6

Center Day 3

Let's add 2 two-digit numbers.

Activity 1

Introduce Target Numbers—Add Two-digit Numbers

Choose a center.

Target Numbers

Number Puzzles

$14 = 8 + \square$

Mystery Number

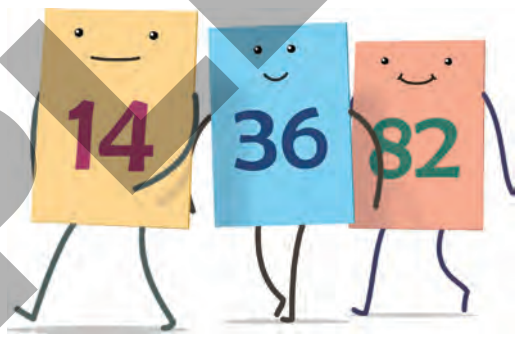
Activity 2

Introduce Five in a Row—Add within 100 with Composing

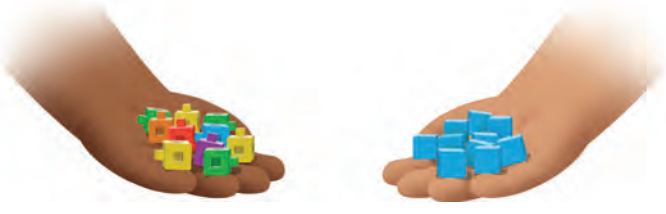
Choose a center.

Five in a Row

Get Your Numbers in Order



Grab and Count



Unit 5, Lesson 14

Addressing CA CCSSM 1.NBT.4-6; builing towards 1.NBT.2-3; practicing MP4

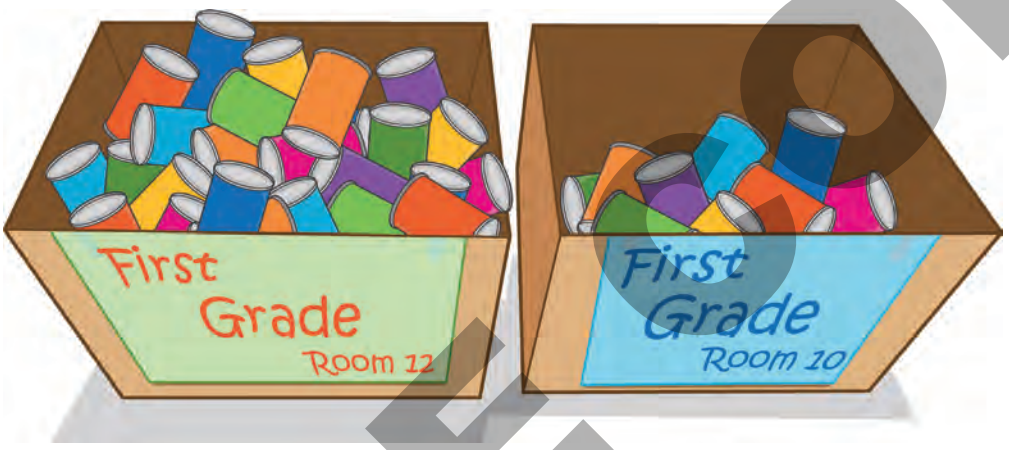
Food Drive

Let's use addition to pack boxes of cans.

Warm-up

Estimation Exploration: Food Drive

How many cans did the first graders collect for the food drive?



Record an estimate that is:

too low	about right	too high

Activity 1

Boxes of Cans

Room	Cans Collected on Day 1
Kindergarten	18
1st grade	51
2nd grade	23
3rd grade	13
4th grade	39
5th grade	40
6th grade	8
7th grade	29
8th grade	30

If the cans from each grade need to stay together in a box, how can the boxes be packed so there are 35 to 65 cans in each box?

Show your thinking using drawings and equations.

If you have time: Can any box have cans from 3 grade levels?

What is the least amount of boxes the school can pack to send to the Food Bank?

Practice Problems

7 Problems

1 from Unit 5, Lesson 9

Find the value of 35 + 48.

Show your thinking using drawings, numbers, or words.

2 from Unit 5, Lesson 10

a. Find the value of $16 + 55$.

Show your thinking using drawings, numbers, or words.

b. Can you find the value in a different way?

3 from Unit 5, Lesson 11

Use your favorite method to find the value of 34 + 59.

Sec C

Why do you like the method you chose?

4 from Unit 5, Lesson 12

Choose a 2-digit number to add to 46 so that you make a new 10.

Add the numbers.

Write equations to show your thinking.

5 Exploration

Elena has a way to find the value of 28 + 47 without making a 10. Here is her work.

30 – 2 = 28

50 – 3 = 47

80 – 5 = 75

a. Explain why Elena's work is correct. Use connecting cubes if it is helpful.

b. Use Elena's method to find the value of 39 + 55.

6 Exploration

Diego and his friends are working on the same addition problem.

Diego's method	Lin's method	Priya's method
$40 + 20 = 60$	$48 + 2 + 5 = 55$	$40 + 27 = 67$
$60 + 15 = 75$	$55 + 20 = 75$	$67 + 3 + 5 = 75$

a. What is the addition problem Diego and his friends are working on?

b. Which method is your favorite?

Solve $56 + 28$ using your favorite method.

7 Exploration

Clare wrote some expressions.
Each expression makes a ten.
She spilled water on her work.
Find the digit that could be under each water mark.

a.

b.

c.

d.

e.

GRADE 1

UNIT

Length Measurements Within 120 Units

Content Connections

In this unit you will extend your knowledge of linear measurement by comparing lengths and measuring objects individually as well as objects that do not connect together. You will make connections by:

- **Reasoning with Data** while comparing objects using length, weight, and capacity.
- **Exploring Changing Quantities** while using centimeter cubes (small units) to measure objects and use precision to make sure there are no gaps or overlap.

- **Taking Wholes Apart, Putting Parts Together** while using connecting cubes and base ten drawings to recognize 100 as 10 tens.

Addressing the Standards

As you work your way through **Unit 6 Length measurements within 120 Units,** you will use some mathematical practices that you may have started using in kindergarten and have continued strengthening over your school career. These practices describe types of thinking or behaviors that you might use to solve specific math problems.

Mathematical Practices	Where You Use these MPs
MP1 Make sense of problems and persevere in solving them.	
MP2 Reason abstractly and quantitatively.	Lesson 8, 11, 13, 14, and 15
MP3 Construct viable arguments and critique the reasoning of others.	Lesson 1 and 5
MP4 Model with mathematics.	Lesson 2 and 17
MP5 Use appropriate tools strategically.	Lesson 3, 10, and 16
MP6 Attend to precision.	Lesson 1, 2, 3, 5, 6, 7, and 14

Mathematical Practices	Where You Use these MPs
MP7 Look for and make use of structure.	Lesson 2, 4, 8, 9, 13, 14, and 16
MP8 Look for and express regularity in repeated reasoning.	Lesson 4, 9, and 12

The California Common Core State Standards for Mathematics (CA CCSSM) describe the topics you will learn in this unit. Many of these topics build upon knowledge you already have and challenge you to expand upon that knowledge. The table below shows whatstandards are being addressed in this unit.

Big Ideas You Are Studying	California Content Standards	Lessons Where You Learn This
• Make Sense of Data • Measuring with Objects	**1.MD.1** Order three objects by length; compare the lengths of two objects indirectly by using a third object.	Lesson 1, 2, 3, 5

Big Ideas You Are Studying	California Content Standards	Lessons Where You Learn This
• Make Sense of Data • Measuring with Objects	**1.MD.2** Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. *Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.*	Lesson 5, 6, 7, 8, 9, 10, 11, and 17
• Make Sense of Data • Tens and Ones	**1.NBT.1** Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.	Lesson 8, 9, 12, and 16

Big Ideas You Are Studying	California Content Standards	Lessons Where You Learn This
• Equal Expressions • Reasoning about Equality • Tens and Ones	**1.NBT.4** Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.	Lesson 2, 4, 10, and 16

Big Ideas You Are Studying	California Content Standards	Lessons Where You Learn This
• Make Sense of Data • Equal Expressions	**1.OA.1** Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	Lesson 11, 12, 13, 14, and 15
• Make Sense of Data • Equal Expressions	**1.OA.2** Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	Lesson 11

Big Ideas You Are Studying	California Content Standards	Lessons Where You Learn This
• Equal Expressions	**1.OA.4** Understand subtraction as an unknown-addend problem. *For example, subtract 10 – 8 by finding the number that makes 10 when added to 8.*	Lesson 11 and 14
• Equal Expressions • Reasoning about Equality	**1.OA.6** Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).	Lesson 11, 12, 13, 14, and 15

Addressing CA CCSSM 1.MD.1; building on K.MD.2; building towards 1.MD.1; practicing MP3 and MP6

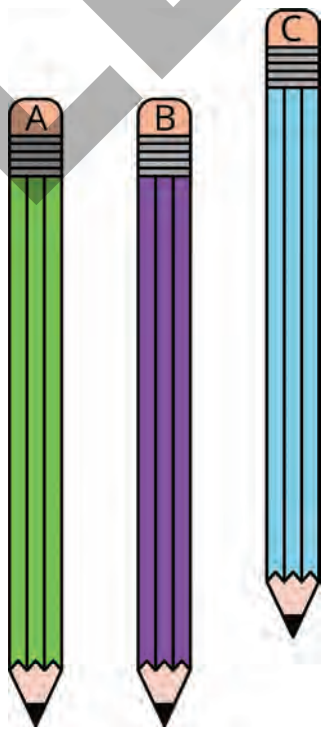
Compare Lengths

Let's compare and order objects by length.

Warm-up

Notice and Wonder: Pencils

What do you notice?
What do you wonder?



Activity 1

Is It Longer or Shorter?

Share your thinking with your partner.

- Choose 2 objects. Compare their lengths.
- Choose 2 *different* objects. Compare their lengths.

Write your answers.

1. Choose an object that you write with.
   Find the tower of 3 connecting cubes.

   Which is longer?

   Draw the 2 objects to show which is longer.

2. Choose a different object.
   Find the tower of 8 connecting cubes.

   Which is shorter?

   Draw the 2 objects to show which is shorter.

3. Find an object that is shorter than your shoe.
   Fill in the blank.

   The _____ is shorter than my shoe.

4. Find an object that is longer than your finger.
   Fill in the blank.

   The _____ is longer than my finger.

Activity 2

Order Objects

1. Pick 3 objects.

   Put the objects in order from *shortest to longest.*

   Trace or draw the objects in that order.

2. Pick 3 new objects.

   Put them in order from *longest to shortest*.

   Write the names of the objects in that order.

Activity 3

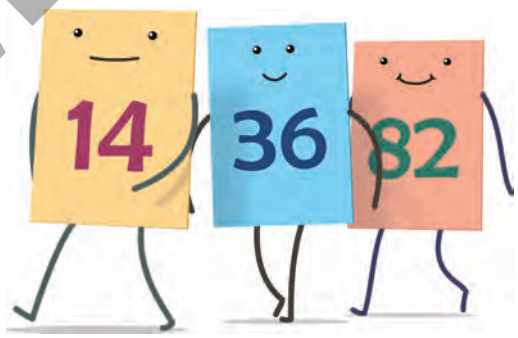
Centers: Choice Time

Choose a center.

Target Numbers

Five in a Row

Get Your Numbers in Order



Addressing CA CCSSM 1.MD.1 and 1.NBT.4; practicing MP4, MP6, and MP7

Compare the Lengths of Objects Indirectly

Let's compare 2 objects using a third object.

Warm-up

Number Talk: Add within 100

Find the value of each expression mentally.

- 35 + 20
- 35 + 25
- 30 + 45
- 37 + 45

Activity 1

Which Is Longer? Which Is Shorter?

Look at the pencil.

Find 2 objects that are longer.

Find 2 objects that are shorter.

Complete a sentence for each object.

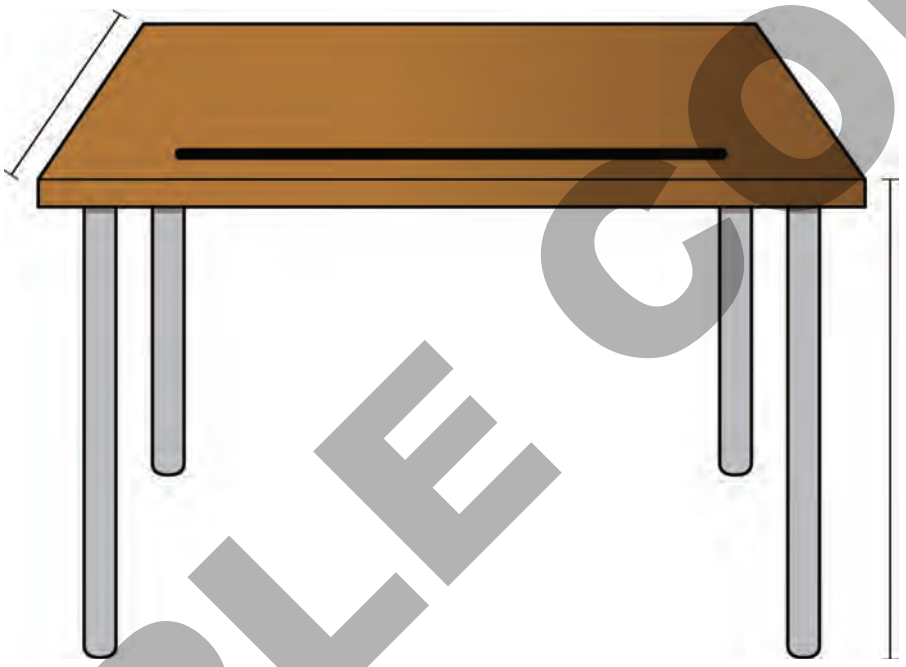
1. The _____ is longer than the _____.
2. The _____ is longer than the _____.
3. The _____ is shorter than the _____.
4. The _____ is shorter than the _____.

Activity 2

Measure Your Desk

Look at 1 side of a desk. Look at 1 leg of the desk.

Use string to compare the lengths.



Which is longer? Show your thinking using drawings or words.

Addressing CA CCSSM 1.MD.1; practicing MP5 and MP6

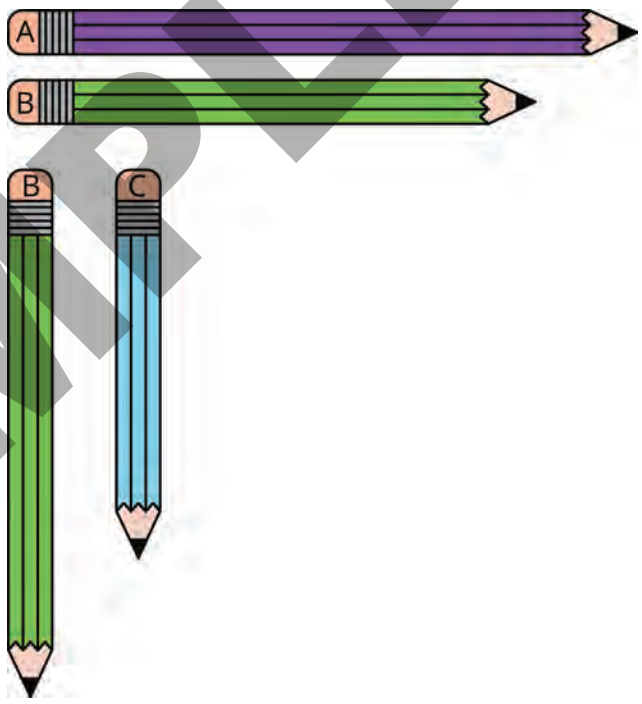
Choose Objects to Compare Length Indirectly

Let's compare the lengths of objects without moving them.

Warm-up

Notice and Wonder: More Pencils

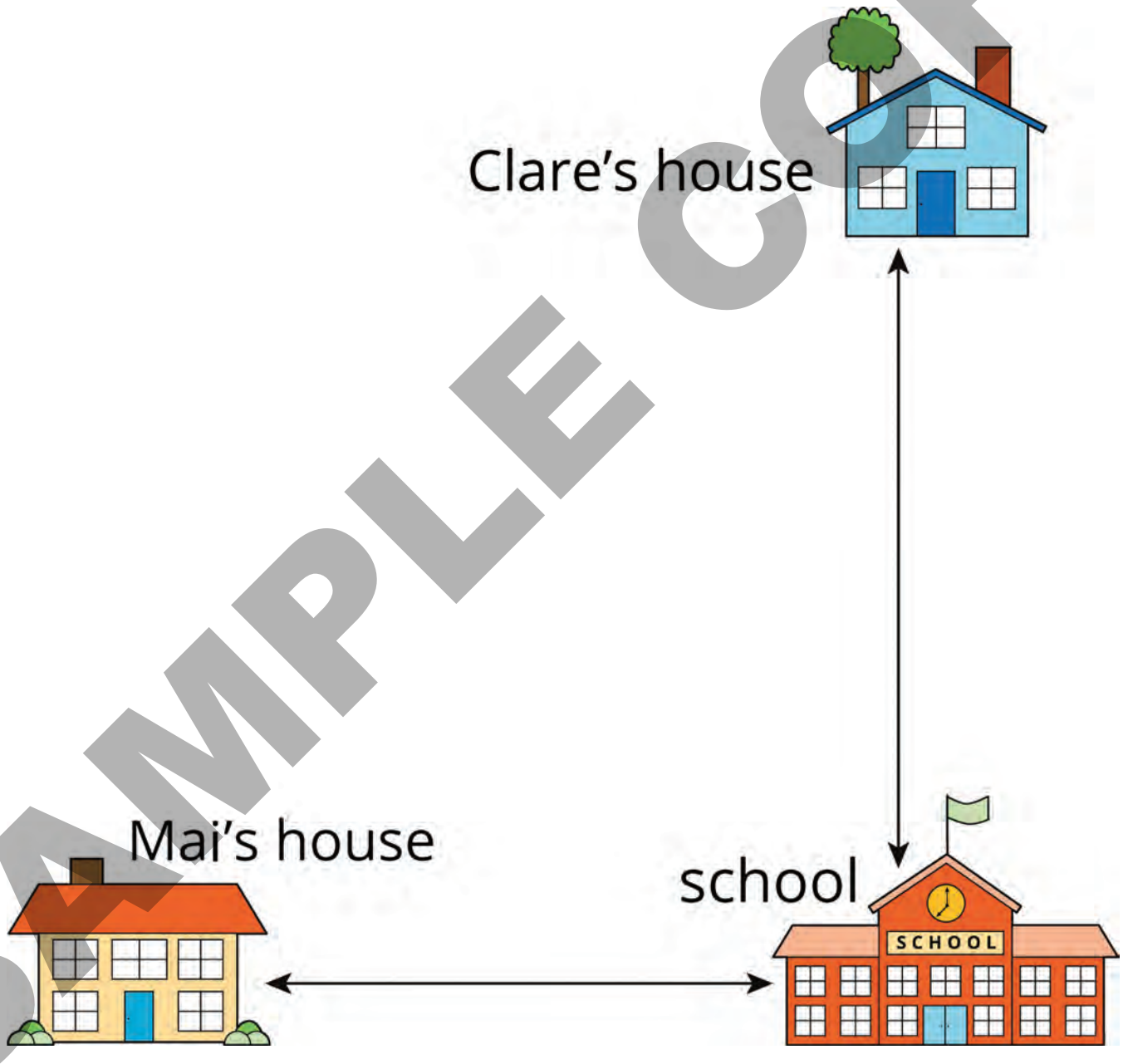
What do you notice?
What do you wonder?



Activity 1

Mai and Clare Walk to School

Clare and Mai walk to school. Whose walk is shorter?
Be ready to explain your thinking.



Activity 2

Will It Fit?

Show your thinking using drawings, numbers, or words.

1. Will the teacher's desk fit through the door?

2. Will a student desk fit through the door?

3. Which is longer, the bookshelf or the rug?

4. Which is longer, the student desk or the bookshelf?

5. Which is shorter, the bookshelf or the teacher's desk?

6. Will the teacher's desk fit next to the bookshelf?

Section A Summary

We compared the **length** of objects.

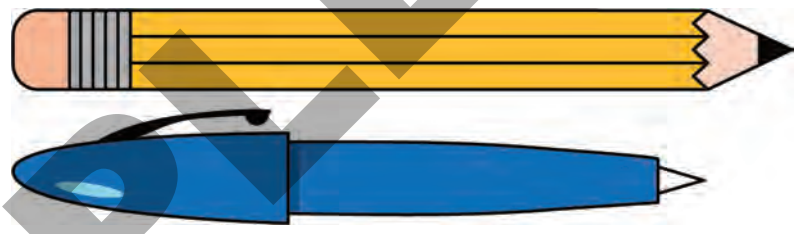
We lined up their ends to compare.

The blue rectangle is longer than the red rectangle.

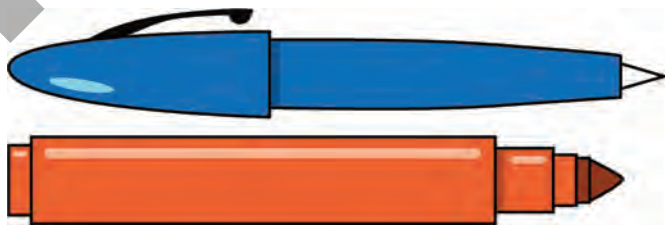
The red rectangle is shorter than the blue rectangle.

We used a third object to compare the lengths of 2 objects.

The pen is shorter than the pencil.



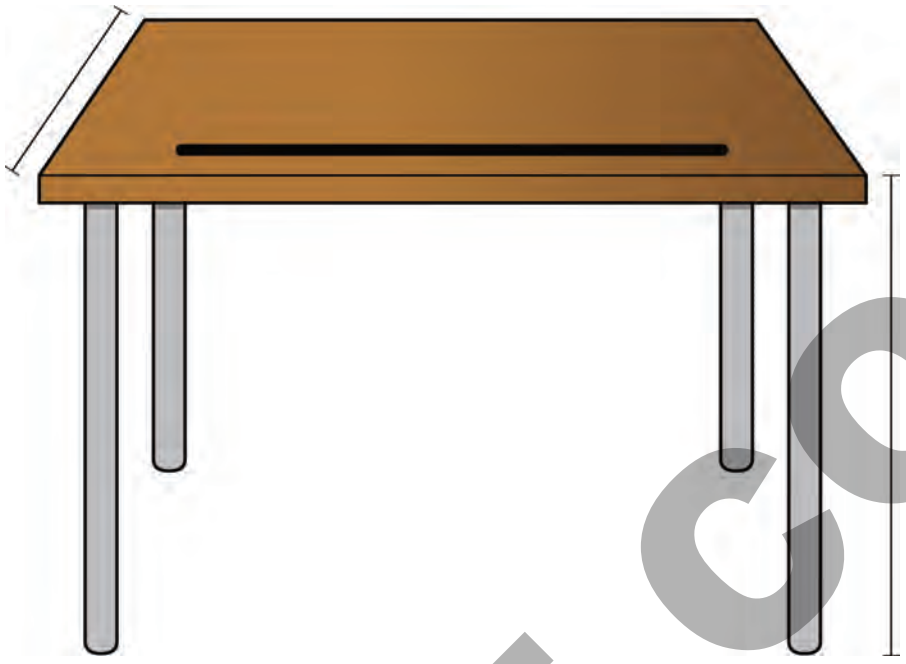
The pen is longer than the marker.



So, we know the marker is shorter than the pencil.

Some objects can't be lined up.

So, we used a third object to compare their lengths.



The leg of the desk is longer than the side of the desk.

Addressing CA CCSSM 1.NBT.4; practicing MP7 and MP8

Center Day 1

Let's practice adding and subtracting.

Warm-up

Number Talk: Use Tens to Add

Find the value of each expression mentally.

- 9 + 6
- 29 + 6
- 39 + 7
- 39 + 9

Activity 2

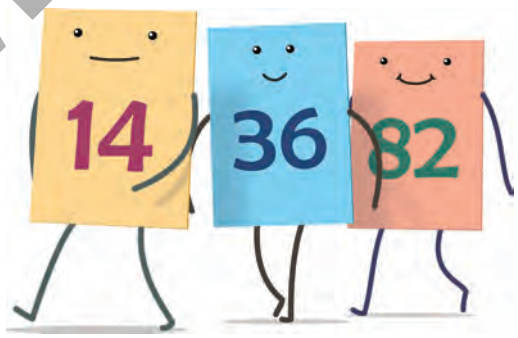
Centers: Choice Time

Choose a center.

Target Numbers

Five in a Row

Get Your Numbers in Order

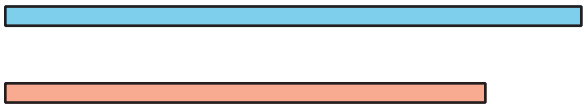


Practice Problems

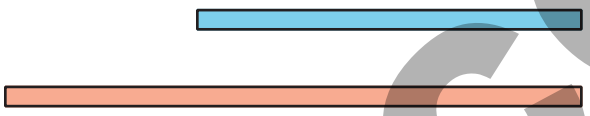
8 Problems

1 Pre-unit

a. Circle the rectangle that is longer.



b. Circle the rectangle that is shorter.

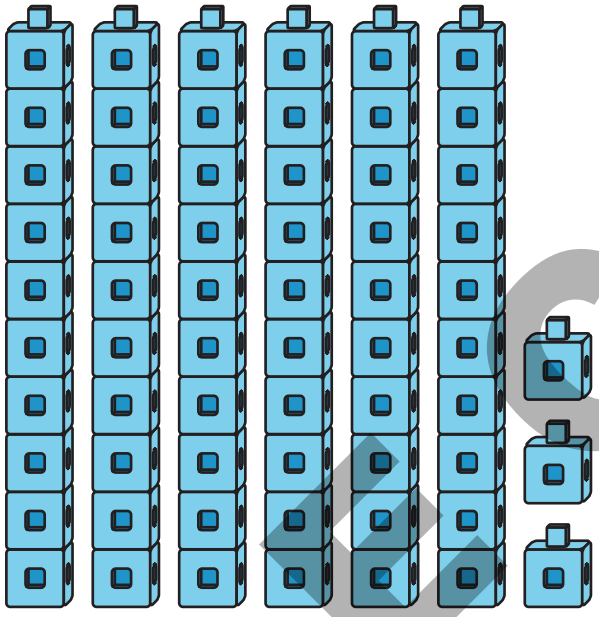


2 Pre-unit

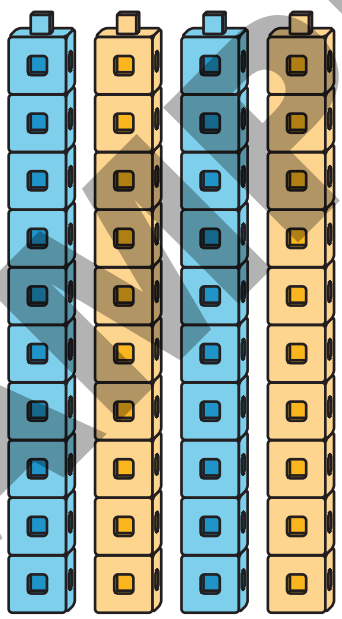
17 fish are in Han's tank.
9 fish are in Clare's tank.
How many more fish are in Han's tank than Clare's?
Show your thinking with drawings, numbers, or words.

How many connecting cubes do you see in each image?

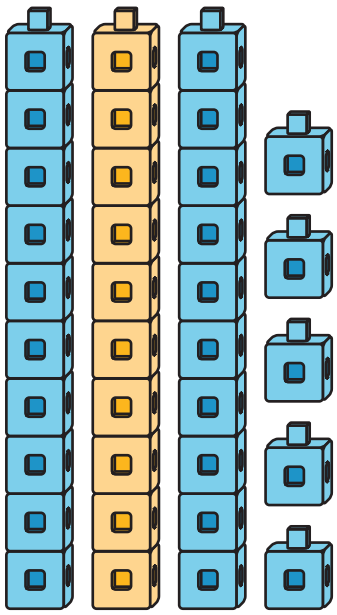
a.



b.



c.



4 from Unit 6, Lesson 1

Use any tool to compare the lengths of the rectangles.

A

B

C

List the rectangles from longest to shortest.

5 from Unit 6, Lesson 2

Look at the top and side of your workbook.
Which is longer?
Show your thinking using drawings or words.

If needed, you can use different objects in the classroom.

a. Which is longer, the teacher's desk or your desk? Show your thinking using drawings, numbers, or words.

b. Which is shorter, the table or the bookshelf? Show your thinking using drawings, numbers, or words.

7 Exploration

Which path is longer?

Your home to school
Your friend's home to school

Explain how you know or how you can find out.

8 Exploration

Which path is shorter?

Your classroom door to the bathroom
Your classroom door to the main office

Show your thinking using drawings, numbers, or words.

Addressing CA CCSSM 1.MD.1-2; building towards 1.MD.2; practicing MP3 and MP6

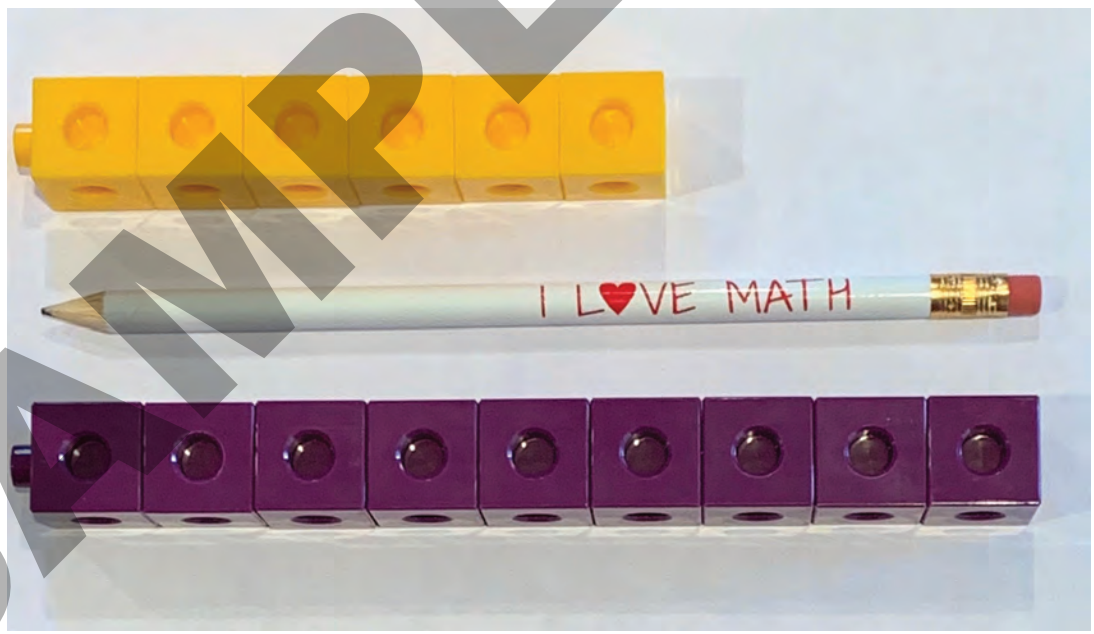
Measure with Connecting Cubes

Let's use connecting cubes to measure length.

Warm-up

Notice and Wonder: Measure a Pencil

What do you notice?
What do you wonder?



Activity 3

Centers: Choice Time

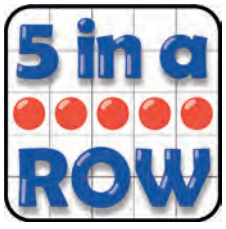
Choose a center.

How Close?

☐☐ + ☐☐ = _____

Target Numbers

Five in a Row



Addressing CA CCSSM 1.MD.2; building towards 1.MD.2; practicing MP6

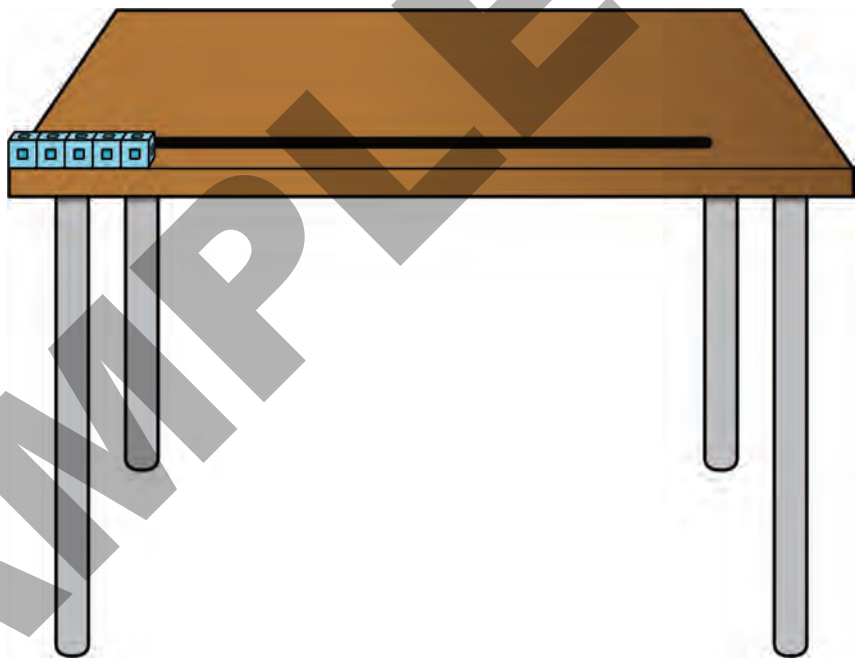
Measure with Paper Clips

Let's measure length with a new tool.

Warm-up

Estimation Exploration: Length of the Desk

How long is the desk in cubes?



Record an estimate that is:

too low	about right	too high

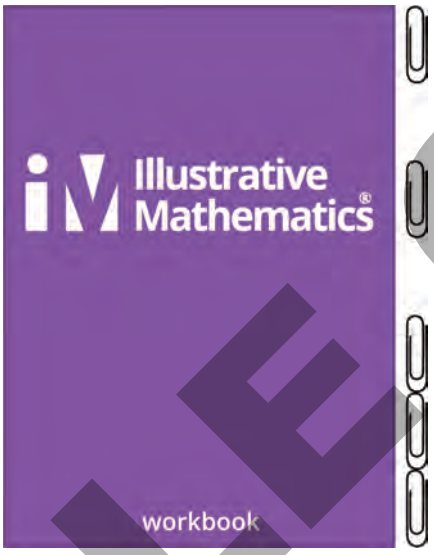
Activity 2

Measure Our Workbook

Circle whether you agree or disagree with each student. Explain your reasoning.

Sec B

1.



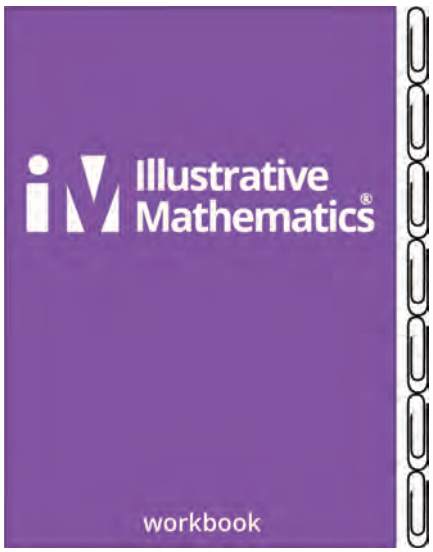
Andre says the workbook is 5 paper clips long.

Agree Disagree

I _____ because _____

_____

2.



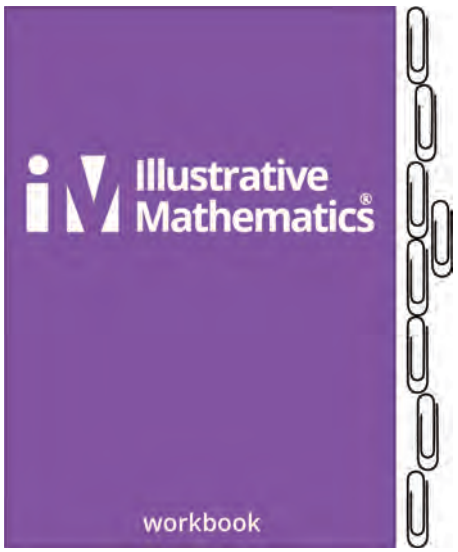
Tyler says the workbook is 7 paper clips long.

Agree Disagree

I _____ because _____

_____

3.



Clare says the workbook is 8 paper clips long.

Agree Disagree

I _____ because _____

_____

Activity 3

Measure Strips of Tape

Use paper clips to measure each strip of tape.

1. The length of Tape A is _____ paper clips.

2. The length of Tape B is _____ paper clips.

3. The length of Tape C is _____ paper clips.

4. The length of Tape D is _____ paper clips.

5. The length of Tape E is _____ paper clips.

6. The length of Tape F is _____ paper clips.

Addressing CA CCSSM 1.MD.2; practicing MP6

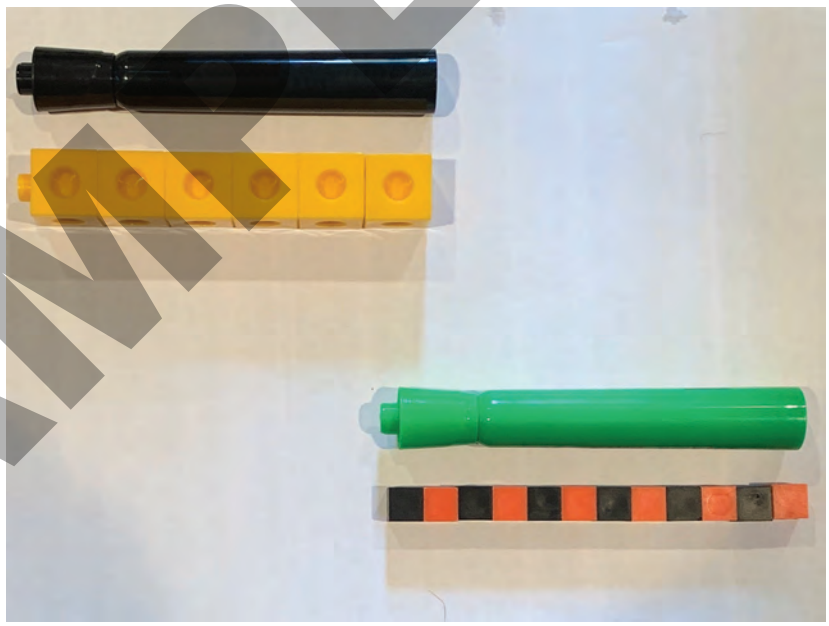
Measure Length with Different Length Units

Let's measure the same object using different length units.

Warm-up

Notice and Wonder: Large Cubes and Small Cubes

What do you notice?
What do you wonder?



Activity 1

Measure with Different Objects

Circle the **3** objects you will use:

connecting cubes

small cubes

small paper clips

large paper clips

Measure the length of Jeison's foot with each object you chose and fill in the table.

Object	Length

Activity 2

Measure the Teacher's Shoe

1. Andre measures his teacher's shoe.
   He says it is 15 connecting cubes long.

Is his measurement accurate?

Explain your reasoning.

2. Jada measures her teacher's shoe.
She says it is 12 connecting cubes long.

Is her measurement accurate?

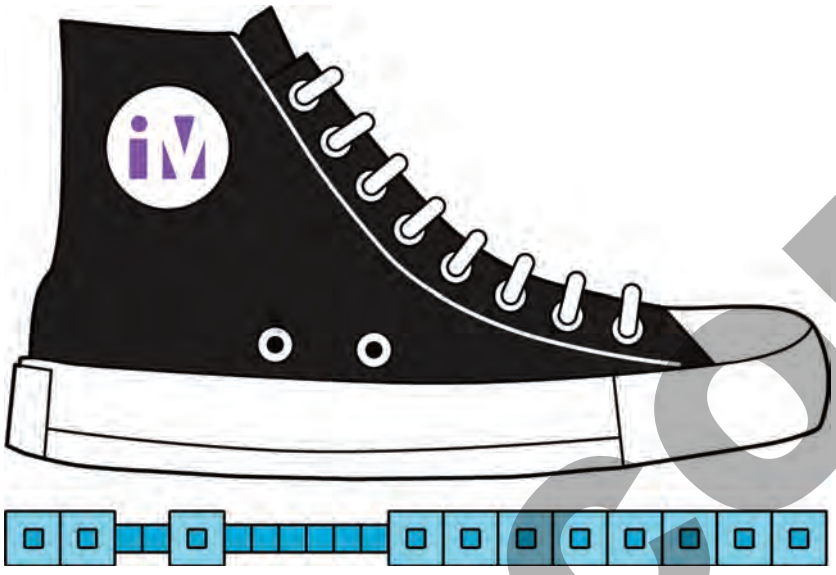
Explain your reasoning.

3. Clare measures her teacher's shoe.
She says it is 30 small cubes long.

Is her measurement accurate?

Explain your reasoning.

4. Kiran measures his teacher's shoe.
He says it is 19 cubes long.



Is his measurement accurate?

Explain your reasoning.

Unit 6, Lesson 8

Addressing CA CCSSM 1.MD.2 and 1.NBT.1; practicing MP2 and MP7

Groups up to 110

Let's measure lengths that are longer than 100 cubes.

Sec B

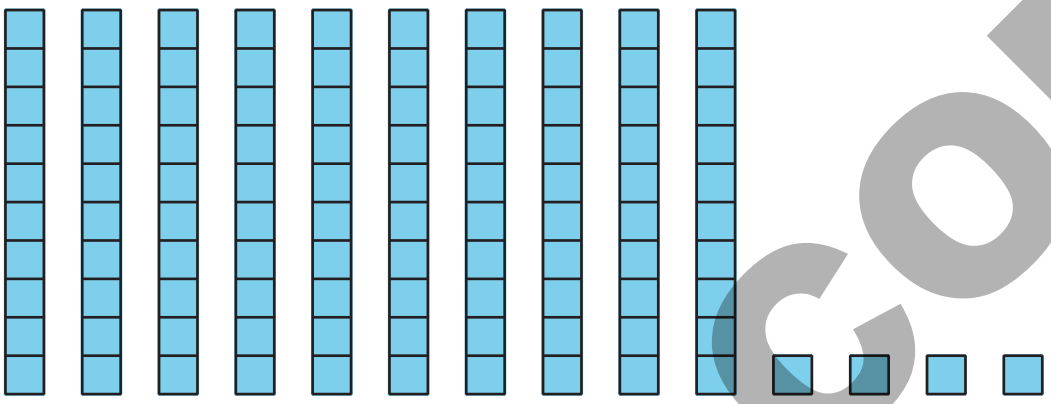
Activity 1

Long Lengths with Small Cubes

Represent your measurement using drawings, numbers, or words.

Activity 2

Card Sort: Representations of Large Numbers



Unit 6, Lesson 9

Addressing CA CCSSM 1.MD.2 and 1.NBT.1; practicing MP7 and MP8

Write Numbers to 120

Let's count, write, and read numbers up to 120.

Activity 1

Measure Animal Lengths

Animal:_____

Length: _____

Show your thinking using drawings, numbers, or words.

Activity 2

Write Numbers to Represent Animal Lengths

Write the number of cubes that represents each animal's length.

1. The beaver is _____ cubes long.

2. The dog is _____ cubes long.

3. The anteater is _____ cubes long.

4. The raccoon is _____ cubes long.

5. The red fox is _____ cubes long.

6. The snake is _____ cubes long.

Section B Summary

We used different objects to measure length.

How to Measure Length with Objects

1. Use objects that are the same length.
2. Line up the objects end-to-end.
3. Do not have gaps or overlaps.
4. Count the number of objects.

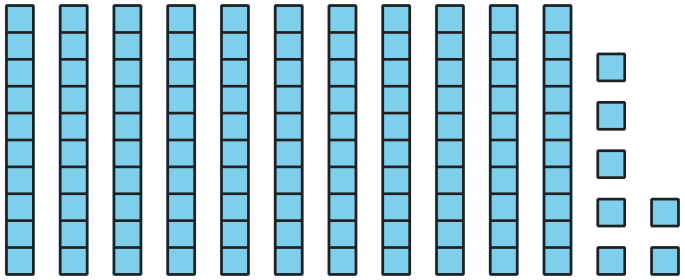
The shoe is 15 cubes long.

We used more objects to measure longer lengths.

We grouped the objects to make them easier to count.

We counted and wrote numbers from 100 to 120.

Jada measures the length of the teacher's desk. She uses small cubes.



The teacher's desk is 117 cubes long.

Addressing CA CCSSM 1.MD.2 and 1.NBT.4; practicing MP5

Center Day 2

Let's measure the length of objects.

Warm-up

True or False: Adding within 100

Is each statement true or false?
Be prepared to explain your reasoning.

- $24 + 30 = 44$
- $24 + 40 = 64$
- $30 + 45 = 75$
- $32 + 45 = 76$

Activity 2

Centers: Choice Time

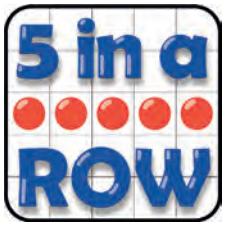
Choose a center.

How Close?

☐☐ + ☐☐ = _____

Target Numbers

Five in a Row



Practice Problems

6 Problems

1 from Unit 6, Lesson 5

Use connecting cubes to measure the length of each rectangle.

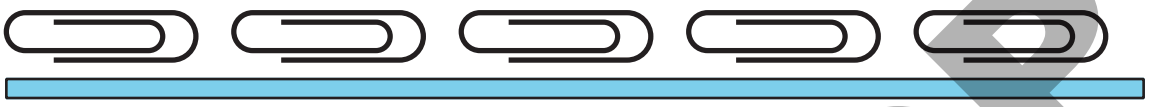
A

B

C

2 from Unit 6, Lesson 6

Jada measures the rectangle. She uses paper clips.



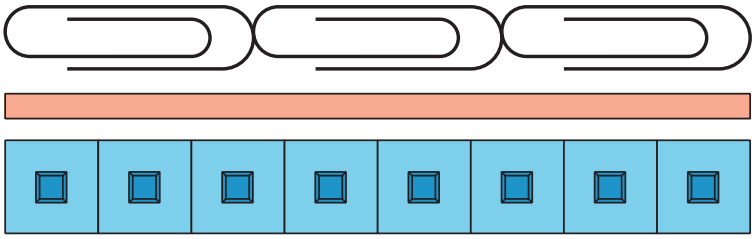
Which statement about the rectangle is true?

a. It is less than 5 paper clips long.
b. It is 5 paper clips long.
c. It is more than 5 paper clips long.

Show your thinking using drawings, numbers, or words.

3 from Unit 6, Lesson 7

Jada and Han measure the rectangle.



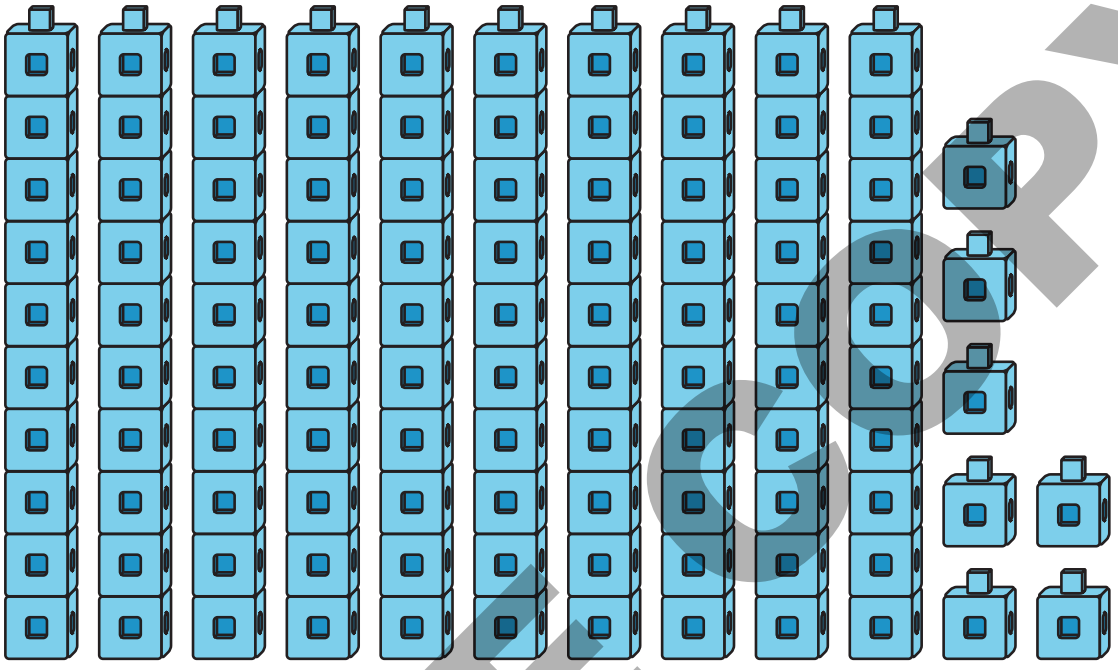
Jada says the red rectangle is 3 units long.

Han says that it is 8 units long.

Explain how both Jada and Han can be correct.

4 from Unit 6, Lesson 9

Lin measures the length of a table using these cubes.



What is the length of the table?

Show your thinking using drawings, numbers, or words.

5 Exploration

Mai measures the length of her school hallway. She uses a broom.

Mai writes how many times she uses the broom:

10 10 10 5 10

10 10 10 8

How many broom lengths long is the school hallway?

Show your thinking using drawings, numbers, or words.

6 Exploration

Priya and Noah measure the length of their classroom in steps.

Priya takes 28 steps to cross the room. Noah takes 26 steps.

a. How could Priya and Noah get different measurements?

b. Measure the length of your classroom in steps.

Unit 6, Lesson 11

Addressing CA CCSSM 1.MD.2, 1.OA.1-2, 1.OA.4, 1.OA.6; practicing MP2

How Long Are Our Shoes?

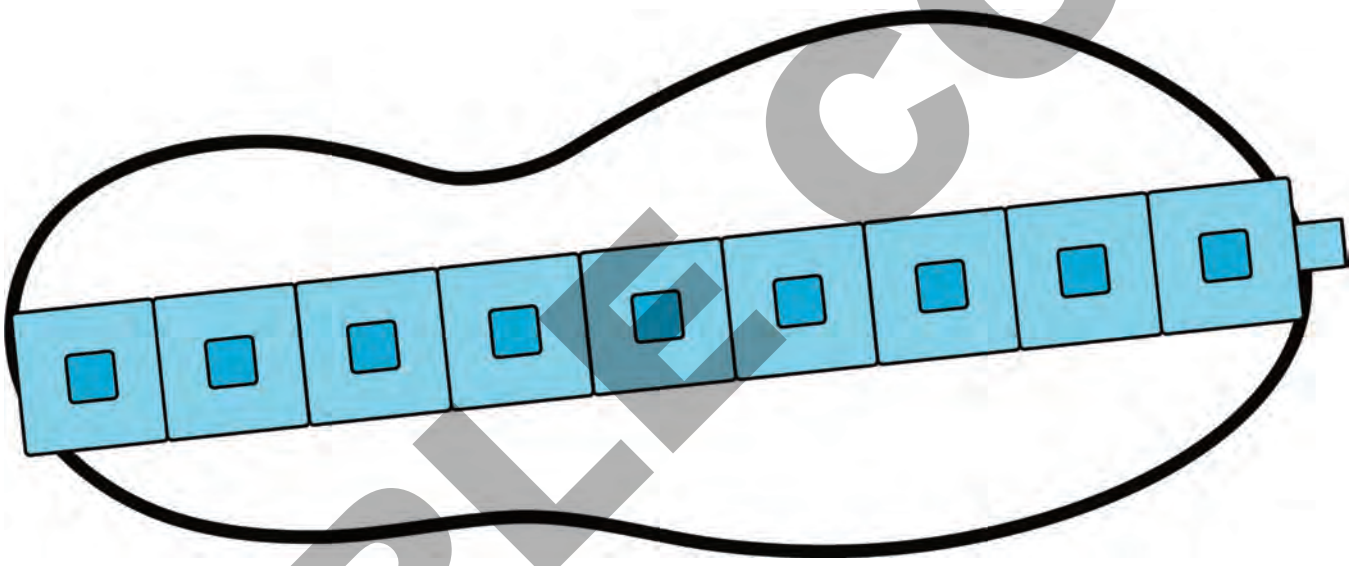
Let's solve story problems about measurement.

Warm-up

Notice and Wonder: Length of a Shoe

What do you notice?

What do you wonder?



Activity 1

The Length of Our Shoes

My teacher's shoe is _____ cubes long.

My shoe is _____ cubes long.

My partner's shoe is _____ cubes long.

Solve these problems about the length of your group's shoes.

Show your thinking using drawings, numbers, words, or equations.

1. What is the length of your shoe and your partner's shoe together?

2. Whose shoe is longer, yours or your partner's?

   How much longer?

3. Whose shoe is shorter, your teacher's shoe or your shoe?

   How much shorter?

Activity 2

Shoe Stories

Show your thinking using drawings, numbers, words, or equations.

1. Clare's shoe is 9 cubes long.
   Han's shoe is 7 cubes long.
   How many cubes long are their shoes together?

2. Kiran's shoe is 7 cubes long.
   His older brother's shoe is 9 cubes long.
   His younger brother's shoe is 4 cubes long.
   What is the total length of their shoes?

3. Diego's shoe is 8 cubes long.
   His father's shoe is 13 cubes long.
   How many cubes longer is his father's shoe than his shoe?

4. Jada's shoe is 8 cubes long.
   She put her shoe together with Elena's shoe.
   Together the shoes are 17 cubes long.
   How long is Elena's shoe?

Unit 6, Lesson 12

Addressing CA CCSSM 1.NBT.1, 1.OA.1, and 1.OA.6; practicing MP8

Compare Measurements

Let's solve story problems in which we compare lengths.

Warm-up

Sec C

Notice and Wonder: 6, 8, and 14

What do you notice?
What do you wonder?

$6 + 8 = 14$

$8 + 6 = 14$

$14 - 6 = 8$

$14 - 8 = \square$

Activity 1

Friendship Bracelets

Priya and Han make friendship bracelets.
Han's bracelet is 14 cubes long.
Priya's bracelet is 4 cubes shorter than Han's bracelet.
How long is Priya's bracelet?
Show your thinking using drawings, numbers, or words.

Activity 2

Same Bracelets, Different Story

Han's bracelet is 4 cubes longer than Priya's bracelet.
Priya's bracelet is 10 cubes long.
How long is Han's bracelet?
Show your thinking using drawings, numbers, or words.

Addressing CA CCSSM 1.OA.1 and 1.OA.6; building towards 1.NBT.4; practicing MP2 and MP7

Solve Take From Story Problems

Let's solve a new type of story problem.

Warm-up

Number Talk: Add 2 Two-digit Numbers

Find the value of each expression mentally.

- 15 + 10
- 15 + 15
- 25 + 25
- 25 + 28

Activity 1

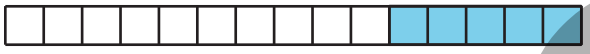
How Many to Start?

Elena has a bag of beads.
She takes out 9 beads.
11 beads are left in the bag.
How many beads were in the bag to start?
Solve the story problem.
Show your thinking using drawings, numbers, or words.

Activity 2

One Representation, Three Stories

1. Discuss with your partner how the drawing shows each problem.



   a. Elena has 15 beads in a box.
      She uses 5 to make a bracelet.
      How many beads does Elena have left?

   b. Elena has some beads in a box.
      She uses 5 to make a bracelet.
      She has 10 beads left.
      How many beads were in Elena's box?

c. Elena has 15 beads in a box.
She uses some to make a bracelet.
She has 10 beads left.
How many beads did Elena use to make a bracelet?

Addressing CA CCSSM 1.OA.1, 1.OA.4 and 1.OA.6; practicing MP2, MP6, and MP7

Which Equation Matches?

Let's think about story problems and equations.

Warm-up

Which Three Go Together: Different Equations

Which 3 go together?

A. $10 = 6 + 4$

B. $16 - 5 = 11$

C. $11 = 6 + 4 + 1$

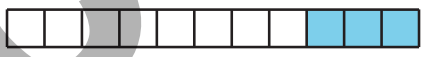
D. $3 + \square = 11$

Activity 2

Stories and Equations

Circle the **2** equations that match each story.

1. Jada uses 8 pictures of people.
   She also uses some pictures of animals.
   Altogether she uses 11 pictures.
   How many pictures of animals does she use?



   - ○ $8 + 11 = ?$
   - ○ $8 + ? = 11$
   - ○ $11 - 8 = ?$

2. Kiran has 19 pictures.
   He gives some to his sister.
   Now, he has 11 pictures left.
   How many pictures did Kiran give to his sister?

   - ○ $11 + 19 = ?$
   - ○ $19 - ? = 11$
   - ○ $19 - 11 = ?$

3. Han's collage has 16 stamps.
   Lin's collage has 10 fewer stamps.
   How many stamps does Lin's collage have?

   - $10 + 16 = ?$
   - $10 + ? = 16$
   - $16 - 10 = ?$

4. Elena uses 9 more stickers than Andre.
   Andre uses 5 stickers.
   How many stickers does Elena use?

   - $9 + 5 = ?$
   - $5 + 9 = ?$
   - $9 - 5 = ?$

5. Noah has 6 stamps.
   Tyler has 16 stamps.
   How many fewer stamps does Noah have than Tyler?

   - ○ 6 + ? = 16
   - ○ 16 – 6 = ?
   - ○ ? – 6 = 16

6. Clare has some stickers.
   She gives 9 of them to her friends.
   She has 5 stickers left.
   How many stickers did Clare have to start?

   - ○ 5 + 9 = ?
   - ○ 9 – 5 = ?
   - ○ ? – 9 = 5

If you have time: Choose a story problem to solve.
Show your thinking using drawings, numbers, or words.

Unit 6, Lesson 15

Addressing CA CCSSM 1.OA.1 and 1.OA.6; building towards 1.NBT.1; practicing MP2

Write Equations for Story Problems

Let's solve story problems and write equations.

Warm-up

Estimation Exploration: Paper Cranes

How many cranes are there in the image?

Record an estimate that is:

too low	about right	too high

Activity 1

Story Problems about Origami

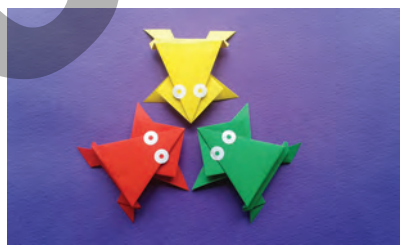
Show your thinking using drawings, numbers, or words.

1. Clare made some cranes.
   She gives 12 of them to Han.
   Now Clare has 7 cranes left.
   How many cranes did she make?

2. Tyler made 15 butterflies.
   Jada made 9 fewer butterflies than Tyler.
   How many butterflies did Jada make?

3. Elena made some red flowers.
   Then she made 12 blue flowers.
   Now she has 18 flowers.
   How many red flowers did she make?

4. Mai made 8 frogs.
   Diego made 17 frogs.
   How many more frogs did Diego make than Mai?



Activity 2

Gallery Walk: Write Equations

Write an equation that matches your classmates' work for each story problem.

1. Equation: _____

2. Equation: _____

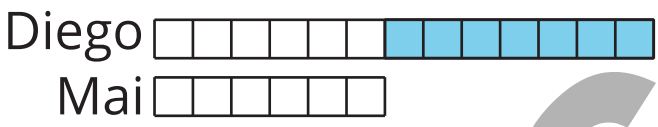
3. Equation: _____

4. Equation: _____

Section C Summary

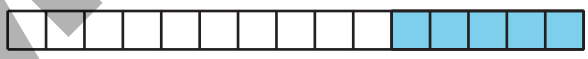
We solved different types of problems.
We represented our thinking using drawings and equations.

Diego's bracelet is 7 cubes longer than Mai's bracelet.
Mai's bracelet is 6 cubes long.
How long is Diego's bracelet?



$6 + 7 = \boxed{13}$

Kiran made some paper cranes.
He gave 5 to his brother.
Now, he has 10 cranes left.
How many cranes did Kiran make?



$5 + 10 = \boxed{15}$

$\boxed{15} - 5 = 10$

Addressing CA CCSSM 1.NBT.1 and 1.NBT.4; practicing MP5 and MP7

Center Day 3

Let's practice counting, measuring lengths, and writing numbers.

Warm-up

Number Talk: Add 20 and 1

Find the value of each expression mentally.

- 65 + 20
- 85 + 1
- 65 + 20 + 1
- 65 + 21

Activity 2

Centers: Choice Time

Choose a center.

Write Numbers

Sec C

Estimate and Measure

Addressing CA CCSSM 1.MD.2; building on 1.MD.2; building towards 1.G.1; practicing MP4

Class Quilt

Let's create a class quilt.

Warm-up

Notice and Wonder: Patchwork Quilt

What do you notice?
What do you wonder?

Activity 1

Patches for Our Quilt

Activity 2

Create a Border

1. Make a border for your patch. Use construction paper. The border should be 1 cube longer than your patch on each side.
2. Glue your patch to your border.

Practice Problems

7 Problems

1 from Unit 6, Lesson 11

Lin's shoe is 8 cubes long.

Her father's shoe is 17 cubes long.

How many cubes shorter is Lin's shoe than her father's shoe?

Show your thinking using drawings, numbers, words, or equations.

2 from Unit 6, Lesson 12

Priya's bracelet is 11 cubes long.

Han's bracelet is 3 cubes shorter than Priya's.

How long is Han's bracelet?

Show your thinking using drawings, numbers, words, or equations.

3 from Unit 6, Lesson 13

Tyler has some beads on a bracelet.
He takes 6 beads off.
Now there are 7 beads on the bracelet.
How many beads were on Tyler's bracelet to start?
Show your thinking using drawings, numbers, words, or equations.

4 from Unit 6, Lesson 14

13 players are on the soccer field.
Some friends come to play.
Now there are 19 players on the field.
Circle the equation that represents the situation.

A. $13 + 19 = \square$

B. $13 + \square = 19$

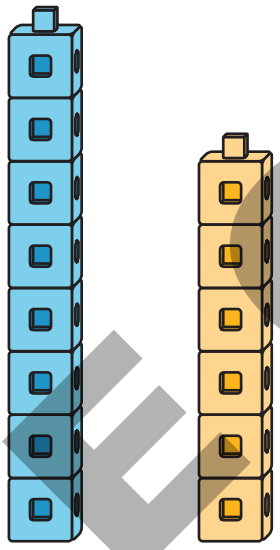
C. $\square - 13 = 19$

5 from Unit 6, Lesson 15

Kiran and Clare made 13 origami swans.
Kiran made 5 of them.
How many swans did Clare make?
Show your thinking using drawings, numbers, words, or equations.

6 Exploration

Andre uses these cubes to represent a story problem.



What could Andre's story be?

Write a story problem.

Trade stories with a partner.

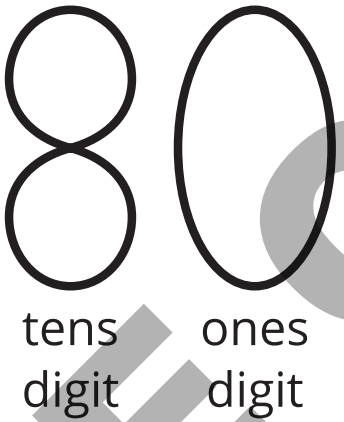
Solve your partner's problem.

Then write 2 different equations that represent the situation.

Glossary

- 2-digit number
  A number with 1 digit to show tens and 1 digit to show ones.

  Example:



- category
  A label that tells how objects in a group are alike.

- data
  A collection of facts, such as numbers, measurements, or observations.

  Examples:
  the color of each pencil in a box
  the number of pencils sold each day
  the length of each pencil in a box

- difference
  The result when a number is subtracted from another.

  Example:
  $4 – 1 = 3$
  The difference is 3.

- equal to
  Having the same value.

  Example:
  35 is equal to 35.
  $35 = 35$

- estimate
  To find a value that is close to the actual value.

- greater than
  Having a larger value.

  Example:
  63 is greater than 32.
  $63 > 32$

- length
  The measure of how long an object is in same-size units with no gaps or overlaps.

  Example:
  This sneaker is 15 cubes long. Its length is 15 cubes.

- less than
  Having a smaller value.

  Example:
  32 is less than 63.
  $32 < 63$

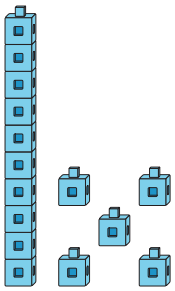
- sum
  The total when 2 or more numbers are added.

  Example:
  $3 + 1 = 4$
  The sum is 4.

- survey
  A way to collect data by asking people the same questions.

- teen number
  A number with 1 ten and between 1 and 9 ones.

  Example:
  15 is 1 ten and 5 ones.
  15 is a teen number.



- ten
  A group of 10 ones.

Attributions

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Unit 6: Length Measurements within 120 Units

Lesson Grade1.6.B7

Swatman, R. (2018, June 4). Customised shoes made for man with the largest feet after they grow even bigger. *Guiness World Records*. Retrieved from https://www.guinnessworldrecords.com/news/2018/6/customised-shoes-made-for-man-with-the-largest-feet-after-they-grow-even-bigger

Notes

California Common Core State Standards for Mathematics (CA CCSSM) Reference

1.G: Grade 1 - Geometry

Reason with shapes and their attributes.

1.G.1

Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.

1.G.2

Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape. Students do not need to learn formal names such as “right rectangular prism.”

1.G.3

Partition circles and rectangles into two and four equal shares, describe the shares using the words *halves,*

fourths, and *quarters*, and use the phrases *half of, fourth of*, and *quarter of*. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.

1.MD: Grade 1 - Measurement and Data

Measure lengths indirectly and by iterating length units.

1.MD.1

Order three objects by length; compare the lengths of two objects indirectly by using a third object.

1.MD.2

Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.

Tell and write time.

1.MD.3

Tell and write time in hours and half-hours using analog and digital clocks.

Represent and interpret data.

1.MD.4

Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

1.NBT: Grade 1 - Number and Operations in Base Ten

Extend the counting sequence.

1.NBT.1

Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

Understand place value.

1.NBT.2

Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:

1.NBT.2a

10 can be thought of as a bundle of ten ones--called a "ten."

1.NBT.2b

The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.

1.NBT.2c

The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).

1.NBT.3

Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.

Use place value understanding and properties of operations to add and subtract.

1.NBT.4

Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.

1.NBT.5

Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.

1.NBT.6

Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

1.OA: Grade 1 - Operations and Algebraic Thinking

Represent and solve problems involving addition and subtraction.

1.OA.1

Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. See Glossary, Table 1.

1.OA.2

Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.

Understand and apply properties of operations and the relationship between addition and subtraction.

1.OA.3

Apply properties of operations as strategies to add and subtract. Students need not use formal terms for these properties. Examples: If $8 + 3 = 11$ is known, then $3 + 8 = 11$ is also known. (Commutative property of addition.) To add $2 + 6 + 4$, the second two numbers can be added to make a ten, so $2 + 6 + 4 = 2 + 10 + 12$. (Associative property of addition.)

1.OA.4

Understand subtraction as an unknown-addend problem. For example, subtract $10 – 8$ by finding the number that makes 10 when added to 8.

Add and subtract within 20.

1.OA.5

Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).

1.OA.6

Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 – 4 = 13 – 3 – 1 = 10 – 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$ one knows $12 – 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).

Work with addition and subtraction equations.

1.OA.7

Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 – 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.

1.OA.8

Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 + ? = 11$, $5 = \square – 3$, $6 + 6 = \square$.

California Common Core State Standards for Mathematics Standards for Mathematical Practice

These practices rest on important "processes and proficiencies" with longstanding importance in mathematics education. The first of these are the NCTM process standards of problem solving, reasoning and proof, communication, representation, and connections. The second are the strands of mathematical proficiency specified in the National Research Council's report *Adding It Up*: adaptive reasoning, strategic competence, conceptual understanding (comprehension of mathematical concepts, operations and relations), procedural fluency (skill in carrying out procedures flexibly, accurately, efficiently and appropriately), and productive disposition (habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one's own efficacy).

MP1. Make sense of problems and persevere in solving them.

Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous

problems, and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculator to get the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, "Does this make sense?" They can understand the approaches of others to solving complex problems and identify correspondences between different approaches.

MP2. Reason abstractly and quantitatively.

Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to decontextualize—to abstract a given situation and represent it symbolically and manipulate the

representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to contextualize, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.

MP3. Construct viable arguments and critique the reasoning of others.

Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. They justify their conclusions, communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is

flawed, and—if there is a flaw in an argument—explain what it is. Elementary students can construct arguments using concrete referents such as objects, drawings, diagrams, and actions. Such arguments can make sense and be correct, even though they are not generalized or made formal until later grades. Later, students learn to determine domains to which an argument applies. Students at all grades can listen to or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.

- Students build proofs by induction and proofs by contradiction. CA 3.1 (for higher mathematics only).

MP4. Model with mathematics.

Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these

may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.

MP5. Use appropriate tools strategically.

Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. For example, mathematically proficient high school students analyze graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and

compare predictions with data. Mathematically proficient students at various grade levels are able to identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems. They are able to use technological tools to explore and deepen their understanding of concepts.

MP6. Attend to precision.

Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context. In the elementary grades, students give carefully formulated explanations to each other. By the time they reach high school they have learned to examine claims and make explicit use of definitions.

MP7. Look for and make use of structure.

Mathematically proficient students look closely to discern a pattern or structure. Young students, for example, might notice that three and seven more is the same amount as seven and three more, or they may sort a

collection of shapes according to how many sides the shapes have. Later, students will see 7×8 equals the well-remembered $7 \times 5 + 7 \times 3$, in preparation for learning about the distributive property. In the expression $x^2 + 9x + 14$, older students can see the 14 as 2×7 and the 9 as $2 + 7$. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. They also can step back for an overview and shift perspective. They can see complicated things, such as some algebraic expressions, as single objects or as being composed of several objects. For example, they can see $5 - 3(x - y)^2$ as 5 minus a positive number times a square and use that to realize that its value cannot be more than 5 for any real numbers x and y.

MP8. Look for and express regularity in repeated reasoning.

Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation $(y - 2)/(x - 1) = 3$. Noticing the regularity in the way terms cancel

when expanding $(x - 1)(x + 1)$, $(x - 1)(x^2 + x + 1)$, and $(x - 1)(x^3 + x^2 + x + 1)$ might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.

Connecting the Mathematical Practices to the Standards for Mathematical Content

The Standards for Mathematical Practice describe ways in which developing student practitioners of the discipline of mathematics increasingly ought to engage with the subject matter as they grow in mathematical maturity and expertise throughout the elementary, middle and high school years. Designers of curricula, assessments, and professional development should all attend to the need to connect the mathematical practices to mathematical content in mathematics instruction.